Sintetic
SINGLE ITEM IDENTIFICATION FOR FOREST PRODUCTION, PROTECTION AND MANAGEMENT

D7.1
Project management plan

Project Acronym: SINTETIC

Project name: Single item identification for forest production, protection, and management Europe

Call ID: HORIZON-CL6-2022-CIRCBIO-02-06-two-stage
(Harnessing the digital revolution in the forest-based sector)

Work Package: WP7

Duration: 48 months

Starting date: 01/06/2023

Task Number: T7.1

Lead beneficiary: Forest Science and Technology Centre of Catalonia

Contributing beneficiary(ies): All Partners

Funded by the European Union

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Sintetic

Publication

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Abstract: The present deliverable *D7.1: Project Management Plan* presents a structured a structured and cohesive collection of practical guidelines, procedures, and support documents for enhancing project implementation and establishes the administrative basis under which SINTETIC consortium will collaborate towards the successful delivery of its objectives, by laying the ground for an overview on project's core rules and responsibilities. Information herein presented goes beyond SINTETIC Grant and Consortium Agreement, stating the progress that was achieved within the first four months of the project and respective updates up until the submission date. This document intends to aid project partners on their tasks and how to fulfil them. It is a dynamic reference document for each partner in the SINTETIC project and it will be updated as necessary.

Key words: Coordination, Project Management, Project Management Plan, Workplan, Wood Traceability, SINTETIC

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List of abbreviations

Acronym / Abbreviation	Meaning / Full text
AB	Advisory Board
APP	Application
ARBO	Arboreal AB
ASEMFO	Asociación Nacional de Empresas Forestales
ASFOR	Asociatia Forestierilor Din Romania ASFOR
BLUEB	Bluebiloba Startup Innovativa SRL
BOSCAT	Boscat Fusta S.L.
CA	Consortium Agreement
CANBUS	Controller Area Network Bus
CC	Creative Commons
CFS	Certificate on the Financial Statements
CLT	Cross Laminated Timber
CNR	Consiglio Nazionale delle Ricerche or National Council for Research
CO	Confidential
CS	Data Catalogue Service
CSV	Comma-separated values
CTFC	Forest Science and Technology Centre of Catalonia
DoA	Description of the Action
DMP	Data Management Plan
DOI	Digital Object Identifier
DS	Demonstration Site
DSL	Demonstration Site Leader
EC	European Commission
EFESC	European Forestry and Environmental Skills Council

EOS	European Organisation of the Sawmill Industry
EU	European Union
FAIR	Findable, Accessible, Interoperable, Reusable
FFPRRI	Forestry and Forest Products Research Institute
FGI	Finnish Geospatial Research Institute
FISKAR	Fiskarhedens Trävaru Aktiebolag
FMMF	Associazione Foresta Modello delle Montagne Fiorentine
GA	Grant Agreement
GAs	General Assembly
GDPR	General Data Protection Regulation
GEE	Google Earth Engine
GeoDB	Geodatabase
GNSS	Global navigation satellite system
GPS	Global Positioning System
GUI	Graphical user interface
JSON	JavaScript Object Notation
HE	Horizon Europe
HE	High Education
ID	Identifier
IM	Interim Meetings
INNO	Innorenew Coe Center Odlicnosti Za Raziskave In Inovacije Na Podrocju Obnovljivih Materialov In Zdravega Bivanjskega Okolja
IPR	Intellectual Property Rights
ISO	International Organization for Standardization
IT	Information Technology
KONE	Koneyrittäjien Ry
LAMMA	Laboratorio di Monitoraggio e Modellistica Ambientale per lo Sviluppo Sostenibile
LiDAR	Laser Imaging Detection and Ranging

M(x)	Month + (number of the month counting from the start of the project being June 2023 month 1).
MICRO	MiCROTEC S.R.L.
MS	Milestone
NBR	Normalized Burn Ratio
NDVI	Normalized Difference Vegetation Index
NoSQL	No Structured QUery Language
OBJ	Objective
OGC	Open geospatial Consortium
OTME	Otmetka Holding Ab
PCU	Project Coordination Unit
PIVET	PiveteauBOIS
PM	Person Month
PMP	Project Management Plan
PMT	Project Management Team
PU	Public
RE	Research Organization
RFID	Radio Frequency Identification
RIC	Responsible Innovation Committee
RPs	Reporting Periods
re3data	Registry of Research Data Repositories
SAVI	Soil-Adjusted Vegetation Index
SC	Scientific Coordinator
SEN	Sensible
SEP	Standard Ethics Protocol
SILVA	SILVADOR Company S.R.L
SIMTRO	Simtrona, Razvojna Dejavnost, D.O.O.
SME	Small and Medium Enterprise

SOBJ	Subobjective
SPI	Standard Precipitation Index
SQL	Structured Query Language
TL	Task Leader
TREE	Treemetrics Ltd
TRL	Technological Readiness Level
UEF	Itä-Suomen Yliopisto
UML	Unified Modeling Language
UNITBV	Universitatea Transilvania Din Brasov
WP	Work Package
WPn	Work Package number
WPL	Work Package Leader
XML	Extensible Markup Language
3D	Three Dimension

Introduction

The current deliverable **D7.1: Project Management Plan** describes the road map that guide the governance of the SINTETIC project. In case of doubt, the SINTETIC Grant Agreement (GA) and Consortium Agreement (CA) take precedence over this document. This Project Management Plan (PMP) does not replace by any means the contractual obligations among partners and between partners and the European Commission, i.e. the Contract, its Annexes and the CA.

This document is to be consulted by all partners as an aid so that they have in the same document the same references and a shared understanding of the methods and procedures, which are essential to harmonise their work. It identifies and confirms the bodies of the project, the different Work Packages and Task leaders and explains a little bit the role of each partner inside each task to make easier everyday activities.

In this document it has to be distinguish the Annexes that are a set of proposals to further describe each task as well as compendium of information regarding the project, so everything is in an unique document for all the partners.

If correctly used by every partner, these guidelines will reduce project overhead, alleviate project management for all partners and increase efficiency, quality and effectiveness of the work carried out. Specifically, the PMP will help with:

− The planning and organisation of the work in an effective way to obtain the expected results. The interactions between consortium partners must be based on the flow of results. That is why although the internal organisation of each partner's work is at his/her own discretion (as long as each partner meets their commitments), Common planning must henceforth be a guiding principle for every partner and must always be up to date.

− The effectiveness of meetings and how to record the agreements between the partners, which are critical to the progress of work to avoid serious delays.

− The methods of collaboration to achieve a common objective, how to share know-how and enhance the results using the partners' complementary skills.

− The coordination, clear rules for internal and external communications and the mechanisms for decision-making, at different levels (strategic, technical, financial, and administrative).

It is requested to all SINTETIC partners to carefully read this document, and apply the rules, guidelines and standards that are here specified and complemented in the Annexes.

Project Objectives

The project is structured into a set of work packages to develop and test the multi-platform data acquisition generated (Figure 1) over different geographic sites representing diverse technological advancement scenarios typical for European forests, demonstrating a traceability system for trees, logs and boards based on ICT. The tests will also serve as a means of communication/dissemination with different stakeholders. This project will also have several objectives that will be achieved throughout the project besides the core objective already mentioned. This will be, to achieve a higher value recovery of timber assortments (+10%), to increase the overall efficiency of the timber supply chain, to provide a greater competitive advantage of the EU forest industry (increase the yield of high value sawn wood products from 20% to 22%), to increase the EU forested area under active management (aggregation of 12.000 ha fragmented properties), to increase both the timber value, the resilience and the

ecosystem services provided, to tackle illegal logging and the related timber traded (-15%) and to facilitate a homogeneous and widespread uptake of the ICTs in the forest sector (Figure 2).

Figure 1: SINTETIC approach

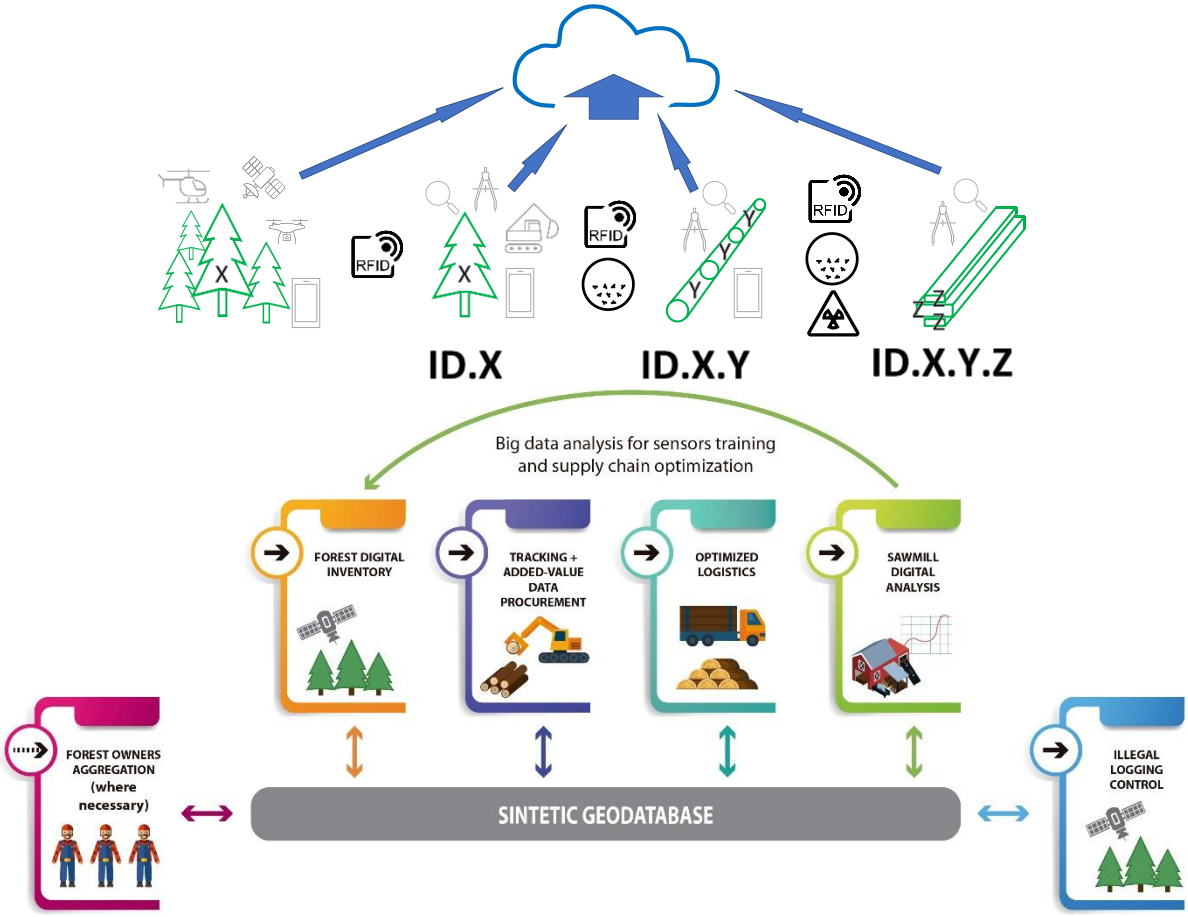


Figure 2: Additional objectives

Relation with other project activities

This document covers project organization, communication tools, project schedule, and various project deadlines. Additionally, it offers valuable project management insights and guidance on reporting and dissemination rules. The Sintetic project consists of 7 Work Packages, as illustrated in Figure 3. WP 7 will be responsible for the effective management and coordination of the project. All Work Packages will adhere to the procedures outlined in this document for project management and quality assurance.

Task 7.1. *Technical, financial and administrative coordination* and its deliverable (D7.1), have a cross-cutting actuation throughout SINTETIC, providing inputs on how partners should cooperate and exchange information and setting project's high-level objectives and plan for the submission of deliverables and of timely reports to the EC.

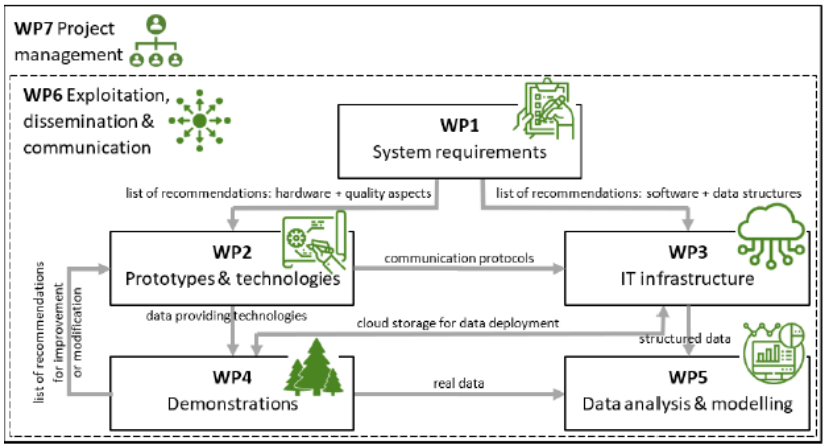


Figure 3 Interactions among work packages

Structure of the deliverable

Deliverable 7.1 is structured as follows:

- Organisational project management structure: contextualising the project in terms of its participants, duration, budget, WP structure and associated deliverables and milestones. Also refers to the two core contractual documents (Grant Agreement and Consortium Agreement).
- Management principles, procedures and rules to be applied, ethics, gender equality and respect for diversity: presenting on SINTETIC consortium bodies and their responsibilities.
- Resource Allocation: presenting the detailed distribution of personnel resources across partners and WPs.
- Internal procedures for ensuring high-quality products: including the process of revision and the reviewers in charge of each deliverable.
- Information management exchange and communication: focusing on the agreed communication procedures and the collaborative tool underlying them. Including list of meetings, their locations and hosts, and expected attendance.
- Risk management: detailing the general plan for risk identification, mitigation, response and monitoring of SINTETIC activities.
- Reporting: covering main orientations towards the submission of both EC and project-internal technical and financial reports, mentioning the documents that will be requested by the PCU and PMT to all remaining partners, as well as the dates and payments framing those reporting periods.
- Annex I: including a detailed description of activities (WPs and tasks). This will enable all consortium partners to have a more granular basis to conduct further work.
- Annex II: Deliverables, Milestones and Demonstration sites
- Annex III: Risk register
- Annex IV: Minutes Template
- Annex V: Person Months distribution across Tasks
- Annex VI: Minutes from the First General Assembly
- Annex VII: Protocol to prevent and act against sexual harassment, harassment on grounds of sex, sexual orientation, gender identity or gender expression, and male chauvinist violence in the SINTETIC Consortium
- Annex VIII: TECHNICAL PERIODIC/CONTINUOUS REPORTING SCHEME (only for the Coordinator or requested partners by the EU) as claimed by the European Commission

Organisational project structure

List of participants

The consortium comprises organisations from 9 European countries, in total 21 partner organisations participate in the project as beneficiaries.

Table 1 SINTETIC Participants

Nº	Participant organisation name	Type	Country
1	Forest Science and Technology Centre of Catalonia **(CTFC)**	RE	SPAIN
2	MiCROTEC S.R.L. **(MiCRO)**	Enterprise	ITALY
3	Bluebiloba Startup Innovativa SRL **(BLUEB)**	SME	ITALY
4	OTMETKA **(OTME)**	Business	SWEDEN
5	SIMTRONA, RAZVOJNA DEJAVNOST, D.O.O **(SIMTRO)**	SME	SLOVENIA
6	Universitatea Transilvania din Brasov **(UNITBV)**	HE	ROMANIA
7	InnoRenew COE **(INNO)**	RE	SLOVENIA
8	Associazione Foresta Modello delle Montagne Fiorentine **(FMMF)**	Other	ITALY
9	Treemetrics LTD **(TREE)**	SME	IRELAND
10	PiveteauBois **(PIVET)**	Industry	FRANCE
11	Consiglio Nazionale delle Ricerche **(CNR)**	RE	ITALY
12	Arboreal AB **(ARBO)**	SME	SWEDEN
13	Boscat Fusta S.L. **(BOSCAT)**	Business	SPAIN
14	Consorzio LAMMA - Laboratorio di Monitoraggio e Modellistica Ambientale per lo Sviluppo Sostenibile **(LAMMA)**	RE	ITALY
15	Ita-Suomen Yliopisto **(UEF)**	HE	FINLAND
16	Fiskarhedens Trävaru Aktiebolag **(FISKAR)**	Industry	SWEDEN
17	SILVADOR COMPANY SRL **(SILVA)**	SME	ROMANIA
18	Asociacion Nacional de Empresas Forestales **(ASEMFO)**	Other	SPAIN
19	European Organisation of the Sawmill Industry **(EOS)**	Other	BELGIUM
20	Koneyrittäjät ry RY **(KONE)**	Other	FINLAND
21	Asociația Forestierilor din România **(ASFOR)**	Other	ROMANIA

Type → RE: Research organization; HE: Higher education organization; SME: Small and Medium Enterprise; Other: Other non-for-profit organization; Business: profit organization; Industry: profit manufacturing organization; Enterprise: Large enterprises.

Duration

The duration of the project will be 48 months starting on the 1 June 2023.

Budget

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

The estimated eligible costs of the action are 8,853,625.00€ and the maximum grant amount is 7,547,650.00€.

WP structure

SINTETIC is organised into seven Work Packages as shown in Figure 3.

WP1 will initiate the multi-actor interaction by defining the overall system requirements. It will consider not only the technical aspects (data formats, integration, etc.) mainly provided by WP2, but will also consider social and commercial aspects to be integrated in the planning phase necessary to implement the system (WP3) and to exploit it (WP6). WP2 will set up the main technical innovations of the project, providing the prototypes (hardware and software) that will be deployed in real working conditions (WP4) providing data to populate the Geodatabase (WP3). WP3 will implement and maintain the core Geodatabase in charge to collect, elaborate and distribute the data interacting with all WPs. WP4 will demonstrate the prototypes and Geodatabase in operative conditions. Its outcomes will provide both data to assess the economic performance, and technical feedback to update WP2 and WP3 and to develop models and applications based on the interconnected value-chain info flow (WP5). Public demos will also be a key component of dissemination and the basis for training of operators (WP6). WP5 will develop models and practical applications based on the data of WP3, WP4 and additional data sources. It will show the environmental potential of the system providing practical examples to WP6 of the possible services disclosed by the availability of multisource, interconnected data. WP6 will be based on the outcomes and data provided by WP1, WP3 and WP4 to set up an effective exploitation plan and to tackle all the social, professional and legal and identified by the stakeholders as well as carry out a solid communication and dissemination strategy. WP7 will manage the project for a smooth execution of all the tasks and to guarantee the scientific quality of the project's results.

A detailed description is provided in Annex I: WP data sheets.

In Annex II: Deliverables, Milestones and Demonstration sites information regarding the Deliverables, milestones and Demonstration sites regarding the due date as well as the lead beneficiary can be found. Also, regarding the Deliverables, in Table 5 more information regarding the due dates for the correct quality control of the documents is explained.

Contractual documents

Grant Agreement

The Grant Agreement **N° 101082051** is the contractual document signed by all SINTETIC members, being therein defined all the rights and obligations of the consortium towards the European Commission. This document is composed by the following annexes:

Project: 101082051 — SINTETIC — HORIZON-CL6-2022-CIRCBIO-02-two-stage

Associated with document Ref. Ares(2023)6004164 - 29/08/2023

EUROPEAN RESEARCH EXECUTIVE AGENCY (REA)

REA.B – Green Europe
B.3 – Biodiversity, Circular Economy and Environment

GRANT AGREEMENT

Project 101082051 — SINTETIC

PREAMBLE

This **Agreement** ('the Agreement') is **between** the following parties:

on the one part,

the **European Research Executive Agency (REA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and

on the other part,

1. 'the coordinator':

CONSORCI CENTRE DE CIENCIA I TECNOLOGIA FORESTAL DE CATALUNYA (CTFC), PIC 998519165, established in CTRA SANT LLORENC DE MORUNYS KM 2, SOLSONA 25280, Spain,

and the following other beneficiaries, if they sign their 'accession form' (see Annex 3 and Article 40):

2. **MiCROTEC S.R.L. (MiCRO)**, PIC 996372070, established in Via Julius Durst 98, Brixen - Bressanone 39042, Italy,

3. **BLUEBILOBA STARTUP INNOVATIVA SRL (BLUEB)**, PIC 902988133, established in VIA COLUCCIO SALUTATI 78, FIRENZE 50126, Italy,

4. **OTMETKA HOLDING AB (OTME)**, PIC 887843911, established in VASTERBERGA 114, UPPSALA 755 96, Sweden,

5. **SIMTRONA, RAZVOJNA DEJAVNOST, D.O.O (SIMTRO)**, PIC 930489961, established in LISKUR 7, NOVA GORICA 5000, Slovenia,

6. **UNIVERSITATEA TRANSILVANIA DIN BRASOV (UNITBV)**, PIC 999904131, established in BDUL EROILOR 29, BRASOV 500036, Romania,

Figure 4 SINTETIC Grant Agreement

- Annex 1 – DoA, where the WPs are thoroughly described, together with milestones, deliverables, demo sites and associated effort.
- Annex 2 - Estimated budget for the action.
- Annex 2a - Additional information on unit costs and contributions.
- Annex 3 - Accession Forms, signed by all partners, implying their acceptance concerning all the obligations and conditions set throughout the Grant Agreement N° 101082051.
- Annex 4 - Model for the financial statements for each reporting period.
- Annex 5 – Specific rules (Confidentiality and security; Ethics; Values; IPR (background and results) access rights and rights of use; communication, dissemination, open science and visibility; specific rules for carrying out the action).

The overall Description of the Action (DoA) is accessible on the Participant Portal, under the Grant Agreement Data, where the following information is provided: - Work Packages (WP); - Deliverables (title, lead responsibility and date for delivery); - Milestones (title, lead responsibility and date for delivery); - Risks and mitigation measures.

The latest version of this document would be always uploaded in the SINTETIC Teams' collaborative workspace crated by CTFC, in the role of SINTETIC Project Coordinator (see in this document chapter "Information management exchange and communication"). Specifically, inside the "General" Channel inside the folder "General Documentation", together with other documents as the Consortium Agreement and this document as well.

Consortium Agreement

The Consortium Agreement is the internal contract between the partners where the consortium internal rules for several project management topics are stipulated. It specifies with respect to the Project the relationship among the Parties, in particular concerning the organisation of the work between the Parties, the management of the Project and the rights and obligations of the Parties concerning inter alia liability, Access Rights and dispute resolution.

The SINTETIC Consortium Agreement was elaborated having as basis the DESCA – Model Consortium Agreement for Horizon Europe, based upon 2021/695 of the European Parliament and of the Council of 28 April 2021 establishing Horizon Europe – the Framework Programme for Research and Innovation (2021-2027), version 1.1, November 2022, laying down its rules for participation and dissemination (hereinafter referred to as "Horizon Europe Regulation"), and on the European Commission's General Model Grant Agreement and its Annexes, and is made on the Project start date (01/06/2023), hereinafter referred to as the Effective Date.

This document, agreed between and accepted by SINTETIC partners, before **01/06/2023**.

Figure 5 SINTETIC Consortium Agreement

Evolution of the consortium

No changes apply.

Project Management – Roles and responsibilities

SINTETIC is built upon a transdisciplinary, multi-actor consortium that requires special and clear management procedures to address administrative, financial and technical questions and to facilitate internal and external exchanges in the multicultural group. The internal structure of SINTETIC has been designed to ensure a smooth internal coordination (among project partners, third parties, associated entities, end-users and practitioners, and any other actors involved in the project) and an efficient and prompt external coordination (between SINTETIC, European Commission, the project Advisory Board Group, as well as other Horizon projects).

The SINTETIC management structure comprises the following entities, as depicted in Figure 6:

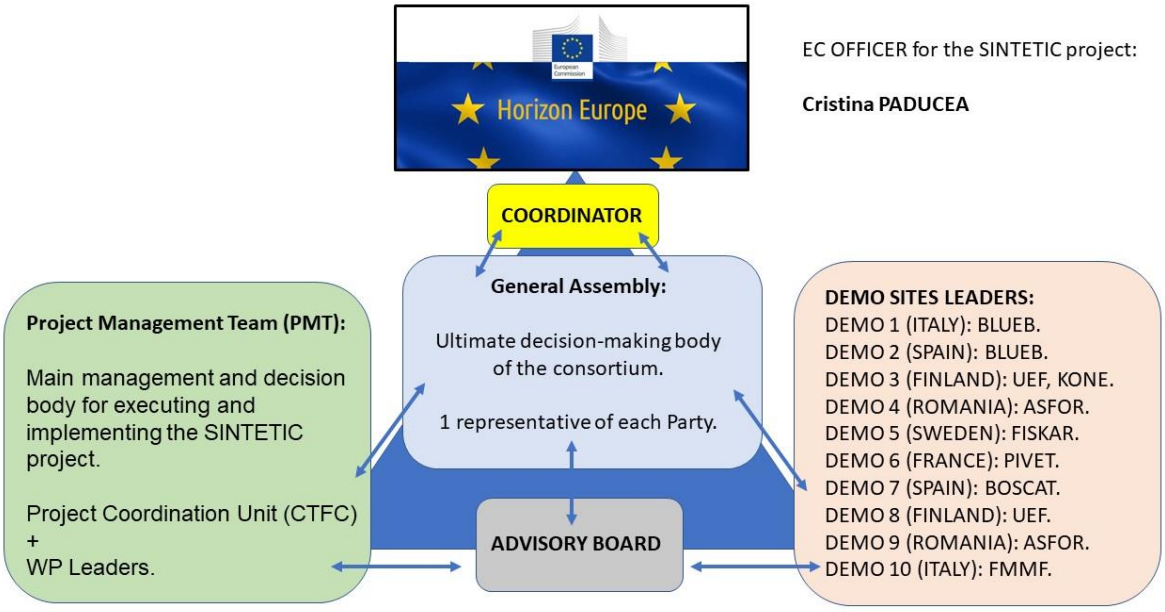


Figure 6: SINTETIC management structure

Coordinator

Dr. Gianni Picchi (CNR) will coordinate the project as the Scientific Coordinator (SC) assisted by a coordination team formed by Antonio Ruano (Project Deputy Coordinator) and Arnau Picó (Project Manager) forming the Project coordinator unit (PCU). They will be the direct point of contact with the European Commissioners.

General Assembly

In the Consortium Agreement the procedures and functions of the General Assembly are more detailed. The General Assembly (GA) is the highest discussion forum and decision-making body of SINTETIC. It is responsible for making decisions of major importance as those related to the project strategy, progress, major project and budget revisions, if needed, exchange of tasks, budgets and staff, intellectual property, dissemination strategies, communication, interaction with other projects and programmes, and measures towards partners that are not accomplishing their contractual obligations.

The General Assembly is composed of **one representative per partner with voting rights**. Each party must ensure that the General Assembly Member is duly authorised to deliberate, negotiate and decide on all matters listed in Section 6.3.1.2. of the Consortium Agreement. In case the General Assembly Member is not the legal representative of the party, then the party needs to ensure an internal process to provide authorization to the representative to deliberate, negotiate and decide on the General Assembly matter in agreement with the legal representative.

General Assembly **ordinary meetings are held once a year** (preferably in-person, alternatively online). In the interest of the project, extraordinary meetings may be held by decision of the coordinator or by at least 1/3 of the GA members. A quorum of at least 2/3 of its members present or represented are required.

Decisions are made by **consensus** but when this cannot be achieved, **majority of 2/3** of the votes casted is needed.

SINTETIC consortium held the **first General Assembly** on June 08th, 2023. The meeting was done in a hybrid format in Solsona (Spain). The milestones 7.1 and 7.4 already reported to the participant portal (10/07/2023). In the Microsoft Teams' workspace under the General channel inside the General meetings folder inside the First GA folder, the final minutes of this meeting with the different groups (AB, PCU, PMT) created is stored. For more info regarding the place where it is stored, please check: Collaborative Tool – SINTETIC Teams' workspace

Project Management Team

The **Project Management Team (PMT)** is the main management and decision-implementing body of SINTETIC. The PMT will be composed of the Project coordinator Unit and the WP Leaders.

The voting rights will be held by **one representative per WP and one representative from the Project Coordinator Unit**.

The following specific tasks belong to the responsibilities of the PMT:

- The Project Management Team (together with the Project Coordination Unit) shall prepare the meetings, propose decisions and prepare the agenda of the **General Assembly.**
- The Project Management Team shall **seek a consensus** among the Parties.
- Be responsible for the **proper execution and implementation** of the decisions of the General Assembly.
- **Manage the Project** by addressing the work plan, including milestones and deliverables, allocating tasks and monitoring impacts.
- Ensure and validate the final **quality** control for all deliverables.
- Be responsible for the technical decision **tacking**, including the review validation of technical documents, **coordination** of scientific publications, and **supervision** of the innovative SINTETIC approaches and prototypes, and **impact assessment**.
- Propose **budgetary adjustments**, subject to decision of the General Assembly and the process for changes to the Grant Agreement.
- Decide upon **proposals from the Project Office** for the allocation of the Project's budget in accordance with the EU Contract and proposing reallocations of the Partners' budgets, defaulting Partners etc.
- Prepare documents and information for the **AB** and propose ways to implement AB recommendations.
- Identify and address **risks**, problems or delays arising in the Project, draft contingency plans and survey ethical and gender issues.
- Decide upon the change and exchange of tasks between the project partners and propose respective **amendments** in Annex I of the EU Contract.
- Support the Coordinator in preparing meetings with the **Granting Authority** and in preparing related **data and deliverables**.
- Prepare the **content and timing of press releases and joint publications** by the consortium or proposed by the Funding Authority in respect of the procedures of the Grant Agreement Article 17 and Annex 5 Section "Communication, Dissemination, Open Science and Visibility" and of Section 8 of this Consortium Agreement.
- Shall collect information **at least every 6 months** on the progress of the Project, examine that information to assess the compliance of the Project with the Project Management Plan.
- Ensure the **implementation** of **Responsible Research and Innovation principles** across the different project activities, particularly concerning gender equality, ethics and integrity.
- **Monthly PMT meetings will be held virtually**. Physical meeting will be held one time per year, back-to-back with the GA meeting when possible. The same decision-making principles are applied as in the GA.

Project Coordinator Unit

The SINTETIC **Project Coordinator Unit (PCU)** is formed by the CTFC coordinator personnel, including Gianni Picchi as the Scientific Coordinator (SC) assisted by a coordination team formed by Antonio Ruano (Project Deputy Coordinator) and Arnau Picó (Project Manager), and potentially other members from the CTFC.

The PCU is the responsible for the **overall project coordination and management** , **represents the Consortium towards the EC** and supervises the overall technical and scientific progress of the project.

The PCU shall be responsible for:

- **Monitoring** the proper implementation of the Project.
- **Chair** all **meetings of the Project Management Team**, unless decided otherwise by a majority of two-thirds.
- Keeping the address list of Members and other **contact persons updated** and available.
- Collecting, reviewing to verify consistency and submitting **reports**, other **deliverables** (including financial statements and related certifications) and specific requested documents to the Granting Authority.
- Transmitting **documents** and information connected with the Project to any other Parties concerned.
- Administering the **financial contribution** of the Granting Authority and fulfilling the financial tasks described in Section 7.2 of the consortium agreement.
- Providing, upon request, the Parties with official **copies or originals** of documents that are in the sole possession of the PCU when such copies or originals are necessary for the Parties to present claims.
- **Organization** and **chairing of the annual General Assembly**, unless decided otherwise by the General Assembly.
- Organize the **Advisory Board** (AB) meetings and integrate its suggestions in the project.
- **Validating** the **Communication Plan** and the **Data Management Plan**.
- Implementing the **Multi-Actor Approach** across the project.
- **Communicate** all relevant information in connection with the project to the EC.
- Prepare, update, and manage the **Consortium Agreement** and set up the administrative procedures for the project and for the reporting to the Commission.
- Day-to-day **financial, administrative, contractual management** of the project, including transfer of payments and monitoring of the partners' compliance with contractual obligations, prepare and submit all required periodic progress reports.
- Ensure **smooth operation of the project**: work plan maintenance, monitor project progress, quality of output with respect to deliverables and milestones; enhance interaction between WPs and partners.
- Perform the **scientific leadership** of the project, together with the PMT.
- Organise, prepare agendas and chair the **PMT** and the **General Assembly**, take all actions to enable proper decision making and prepare the Minutes of these meetings.
- Coordinate the **connection and collaboration** between the Work Packages and the Demo site leaders.
- **Implement the decisions** of the Project Management Team together with the WP leaders.
- Ensure **quality** and relevance of the contents of the **project website.**
- Lead the management of the **SINTETIC Teams' workspace.**
- Communicate with **external parties** and other EC-funded projects.
- Actively promote **gender equality.**
- Offer **help-desk facilities** to other consortium members.

Work Package Leaders

WP leaders (WPL) are responsible for the **management and technical co-ordination of their respective WP**, all necessary coordination with other WPs. The WPL will translate decisions of the PMT into daily management tasks, call meetings with the WP participants whenever necessary, and report results and potential critical issues to the GA and PMT. Specific responsibilities of the WPLs are:

- Design of a detailed **work plan** for their WP and **tune the tasks** for individual partners.
- Organise WP-**specific meetings** to couch, support and stimulate partners, keeping the focus on the strategic objectives of the proposal.
- Monitor the **progress** within each **WP** providing solutions to bottlenecks and dead ends.
- Prepare **annual reports** of their WP, and the interim progress reports and final report, as required for the reporting to the Commission.
- Participate in **PMT meetings** and permanently **communicate with the PCU.**

Table 2 SINTETIC Work Package Leaders

WP	WPL Partner	WP leader
WP1	LAMMA	Manuela Corongiu
WP2	INNO	Jakub Sandak
WP3	TREE	Alejandro Poveda
WP4	CNR	Carla Nati
WP5	UEF	Blas Mola Yudego
WP6	EOS	Silvia Melegari
WP7	CTFC	Antonio Ruano

Demonstration sites Leaders (DSL)

The Demonstration site leader (DSL) will be formed by the executive team of each party responsible for leading at least one demonstration site of the SINTETIC project listed in Table 3 and depicted in Figure 7. The executive team shall include, at least, the scientific coordinator in charge of the technical development and implementation of the respective party. Is responsible for the **management and technical co-ordination of their respective Demonstration site to ensure successful implementation of the demonstration**. The DSL will translate decisions of the PMT into daily management tasks, call meetings with the demonstration site (DS) participants whenever necessary, and report results and potential critical issues to the GA and PMT. Specific responsibilities of the DSLs are:

- Overseeing the development of detailed **DS roadmaps** and **monitoring the implementation of planned activities** in each DS.
- Supporting and **stimulating DS participants** as well as creating space for sharing experiences, co-learning and mutual support.
- Participating in the **GA**, in order to guarantee **smooth information flow between DSLs and WPLs.**

Table 3 SINTETIC Demonstration site Leaders

Demo site	DSL Partner	DS leader
Ds1-Italy	BLUEB	Guido Milazzo
Ds2-Spain	BLUEB	Guido Milazzo
Ds3-Finland	UEF, KONE	Heli Kymäläinen Simo Jaakkola
Ds4-Romania	ASFOR	Ciprian Musca
Ds5-Transtrand, Sweden	FISKAR	Karl Lundevall
Ds6-Vendé, France	PIVET	Federic Chiron
Ds7-Barcelona, Spain	BOSCAT	Diana Gonzales
Ds8-Finland	UEF	Timo Tokola
Ds9-Romania	ASFOR	Ciprian Musca
Ds10-Florence, Italy	FMMF	Matteo Mazzoni

Figure 7 SINTETIC Partners and Demo sites

Advisory Board Structure and composition

The **Advisory Board (AB)** will **advise on any specific strategic matters** regarding the project and to **increase the impact and outreach of the project** providing links to relevant actors and networks. The AB shall assist and facilitate the decisions made by the General Assembly by assessing and evaluating the technical, scientific and exploitation aspects of the project in their respective fields of expertise. It comprises 5 recognized external experts of international standing from a range of academic and practitioner communities.

The AB will meet on annual basis to steer the development of the project impacts and processes. Specifically:

− At the beginning of the project (about M6 providing advice in the planning phase)

− At mid-term of the project (about M21 to assess the correct development of the activities and suggest adjustments)

− At the end of the project to verify the correct scientific and impact achievements of SINTETIC.

Meetings will be chaired by the PCU and the minutes, once accepted, shall be sent by the PCU to the GA members for information.

Specific meetings between task leaders and some AB members regarding their expertise could also be asked for if relevant to the project and always respecting the AB member's schedule.

The AB Members have been required to sign appropriate confidentiality agreements. They will not be remunerated for their participation in telematic meetings, however their travel and per diems' expenses to assist the GAs (optional to attend physically) will be covered by the project up to the budget already accorded for that purpose.

In the SINTETIC Microsoft Teams' workspace a table with the updated members of the AB is available.

AB member	Profile	Entity
Dick Sandberg	Timber X-ray scanning, tomography analysis and sawmill transformation	Professor of Wood Science and Engineering at Luleå University of Technology
Dominik Röser	Timber supply chains, forest operations and precision forestry	Program Director, Forest Resources Management & Forest Operations Programs; Associate Professor University of British Columbia
Esther Merlo Sánchez	Nondestructive testing of wood and quality evaluation (log and standing forests)	Director R+D+I department, Madera Plus Calidad Forestal S.L.
Masahiko Nakazawa	Sensors for the optimization of timber value chains	Researcher and chief Harvest system Laboratory at Forestry and Forest Products Research Institute (FFPRI)
Sanna Kaasalainen	Optical sensors, GNSS, positioning, situational awareness, LiDAR, environmental monitoring	Director of the Navigation and Positioning department at Finnish Geospatial Research Institute (FGI)

The AB will meet in person in the frame of two project interim meetings:

Month	Location	Host
M21 - February 2025	Slovenia (Izola)	INNO
M39 - August 2026	France	PIVET

Additional presence of some of the members of the AB could be requested for specific tasks related to their expertise.

Data Management Plan Manager

The DMP will specify, among others, **how the data will be safely stored**, **control access permissions** and **how the data will be prepared for archiving, or sharing**, during and after the end of the project. For each main type and source of data, the plan will specify whether it will be made accessible for analysis and a wider use (an explanation shall be provided when it cannot be available) in accordance with **FAIR principles**.

The DMP is designed to be a living document and will be reviewed and **updated when significant changes occur and up to the submission of the next version**.

The partner **CNR** will be the **Data Management Plan Manager** as the leader of the Deliverable D1.2, D1.3, D1.4 Data Management Plan (1st, 2nd and Final version respectively at M6, M28 and M42).

Management, ethical, gender and diversity

General management principles

The management principles designed for SINTETIC seek to **satisfy the following requirements**:

- Efficient management of interaction with the EC and consortium regarding all administrative and contractual issues, project reporting, organizational issues, and actions.
- Efficient coordination, ensuring all partners agree on common strategic, technical, and scientific orientations and objectives, and a flexible process to refine or adjust objectives, taking account of changing circumstances or recommendations.
- Efficient project control and appropriate quality assurance, ensuring project results are effective, available in time and within budget, and to a high-quality standard.
- A proactive/reactive process, anticipating possible problems by performing risk assessments which will allow making fast decisions and keeping project risks under control.

The management principles of SINTETIC are the following:

- Clarity and specificity of objectives and documentation.
- Acceptability of objectives by all partners and third entities involved.
- Flexibility of management to enable incorporation of additional operational decisions or to involve more, or some other actors, under conditions of the changing situation.
- Horizontal tuning through correlation of the delivery schemes with other tasks/activities (e.g., those which will multiply joint outputs, but first of all those which will allow for proper interactions between WP activities).
- Vertical tuning (both top-down and bottom-up) when tasks are integrated into relevant WPs and executive structure of the project responds to the EC expectations.
- Feasibility of tasks, concerning their targets and implementation resources.
- Task orientation, with clear and enforced definition of responsibilities between partners.
- The project will adopt an "as open as possible, as closed as necessary" approach. SINTETIC will follow the EU policy on data management, which has been moving towards the strengthening of the adoption of open access policies as regards data that is generated in the context of EU funded research.
- SINTETIC will guarantee the deployment of best practices in data management to ensure its security and availability (for internal and external consortium cooperation). DMP will describe the data management lifecycle for the data generated within the project, from its collection to treatment, storage and sharing processes, always according to the FAIR principles while considering GDPR.
- Adequate handling and processing of personal data, in accordance with the **European legal framework**, the **GDPR** and **national applicable legislation**.
- Basic rules of confidentiality, proper documentation and certification of experimental results will be followed in order to ensure **Intellectual Property Protection (IP).** Since Open innovation relies in knowledge flows and knowledge sharing among different organizations, specific attention will be devoted to **IP management in the context of Open Innovation**. Corresponding achievements, exploitation and patent plans will be communicated to the EC.

- SINTETIC will have a system to **monitor risks** in order to detect early-warning signals of such risks and apply corresponding mitigation planes (more details in Risk mitigation section).

SINTETIC strategy to manage all the knowledge provided by the project is built upon **Responsible Research and Innovation (RRI) principles**. Therefore, any material of a confidential nature supplied to the project will remain strictly for the use by participants in the project and such information will not be forwarded to any other parties without explicit authorization from the information 'owner'. All SINTETIC results shall be owned by the project partner(s) carrying out the work leading to such results according to the principles established in the Rules for Participation, as well as the Grant Agreement and the Consortium Agreement.

All these principles will affect the development of partners communication, interface with the EC, acceptance of deliverables, monitoring tools and procedures (work plan, actions, follow-ups, travel plan, open issues), quality control, management of reviews, traceability of all actions and risk assessment and mitigation.

Communication principles

The SINTETIC PMP has been designed to ensure good quality communication between project participants, coordinate activities between the participants and between the WPs, and aid the timely provision of deliverables. In this regard, some deliverables and different procedures and rules have been established:

The **SINTETIC Communication and Dissemination Plan** (D6.1 and their two follow ups) will provide the Communication and Dissemination strategy of the project, detailing its main objectives and key principles. Communication measures to reach the main SINTETIC target groups during the project implementation will also be identified in this deliverable.

In particular, SINTETIC communication will adopt the following key principles:

- **Multilingualism and accessibility**
- Adaptation to the **type of audience** (experts vs. general public) and region
- Combined use of **traditional and digital media**
- Use of **transmedia storytelling**, i.e., to create, share and involve the target group in a cohesive story experience via multiple tools (articles, videos, infographics, brochures of good practices, etc.) and from local testimonials.
- Adoption of a **participatory approach to meeting formats** (World Cafe, workshops, etc.) to enhance active learning, interaction and networking.

The monitoring of the compliance of these principles will be led by EOS, although CTFC is responsible for the Communication and Dissemination plan, according to periodic reporting of communication activities.

Ethics principles

The SINTETIC project acquires a series of ethical principles that govern the overall implementation of the project activities. In international projects, partners are usually located in different countries that are likely to have different approaches, standards and legislation related to ethical aspects. Even when different legislation applies, **SINTETIC ensures these ethical principles to be taken along all the project activities**.

These principles are the following:

- SINTETIC ensures a fully **respectful environment** for persons, human dignity, integrity, and the respect of individual autonomy.
- SINTETIC provides a fair distribution of **benefits and burdens**.

- SINTETIC considers the **rights and interests** of the participants.
- SINTETIC warrants the free informed **consent** of the participant activities.
- SINTETIC will promote the **honesty and transparency** towards research subjects, and the justice and inclusiveness.
- SINTETIC takes special attention to **vulnerable** categories of individuals such as children, patients, discriminated people, individuals with disabilities, minorities, persons unable to give consent, etc.
- SINTETIC will make scrupulous use of the **personal data** in the development of the research.
- SINTETIC takes the necessary measures to ensure **integrity, security and confidentiality** of the information at its disposal and making responsible use of the resources available for the management of the information.
- SINTETIC ensures that all potential participants have **fully understood** the information and do not feel pressured or coerced into giving consent.
- SINTETIC seeks to use practices that are **not discriminatory** or unfair.
- SINTETIC will act in accordance with the principle of **loyalty to the public service**, understood as the commitment to democratic cooperation in the general interest, and will develop their functions in good faith, fairness, equanimity, political and ideological neutrality.
- SINTETIC promotes respect for ecological, energy-saving and, in general, **environmental protection measures** and protection of future generations' environment.

All research activities carried out within the project will comply with the Article 19 of the Regulation (EU) 2021/695 of the European Parliament and of the Council of 28 April 2021, establishing Horizon Europe - the Framework Programme for Research and Innovation about ethics, and with the European Code of Conduct for Research Integrity (ALLEA 2023; The European Code of Conduct for Research Integrity – Revised Edition 2023. Berlin. DOI 10.26356/ECOC).

Inside this PMP it can also be found on Annex VII: Protocol to prevent and act against sexual harassment, harassment on grounds of sex, sexual orientation, gender identity or gender expression, and male chauvinist violence in the SINTETIC Consortium (GA 101082051) the protocol to prevent and act against sexual harassment, harassment on grounds of sex, sexual orientation, gender identity or gender expression, and male chauvinist violence in the SINTETIC Consortium. This document is also available inside the Teams workspace in the General channel inside the "General documentation" folder.

Resources allocation

The distribution of SINTETIC resources is as detailed in Table 4. In addition, the complete distribution across tasks is shown in Annex I and IV. This complete distribution across tasks is merely indicative to help the partners in allocating efforts in the different actions, but the final distribution can vary accordingly to actual efforts distribution within each WP. No increase in PM is allowed to declare in the SINTETIC project per partner.

PM distribution

Table 4 SINTETIC PM distribution

	WP1 - System requirements analysis and interoperability	WP2 - Prototyping data provider systems	WP3 - Setting-up the IT infrastructure and development of applications	WP4 - Demonstrations	WP5 - Data analysis and modeling	WP6 - Exploitation, dissemination and communication	WP7 - Scientific management and project coordination
PARTNER	LAMMA, June 23 - November 26	INNO, August 23 - May 26	TREE, February 24 - May 26	CNR, November 24 - February 27	UEF, December 24 - May 27	EOS, June 23 - May 27	CTFC, June 23 - May 27
CTFC	3	2	15	20	38	17	63
MICRO	6	78	7	24	12	9	3
BLUEB	5	5	12	10	1	8	2
OTME	8	65	6	37	0	19	4
SIMTRO	1	24	0	8	0	5	3
UNITBV	4	7	2	40	31	19	3
INNO	4	34	5	10	5	7	3

	WP1 - System requirements analysis and interoperability	WP2 - Prototyping data provider systems	WP3 - Setting-up the IT infrastructure and development of applications	WP4 - Demonstrations	WP5 - Data analysis and modeling	WP6 - Exploitation, dissemination and communication	WP7 - Scientific management and project coordination
FMMF	5	0	0	12	0	10	4
TREE	13	32	53	27	17	13	3
PIVET	4	9	0	10	0	6	1
CNR	15	10	30	32	17	20	5
ARBO	2	8	1	2	1	0	1
BOSCAT	3	0	0	6	0	6	1
LAMMA	14	0	19	1	3	0	1
UEF	6	22	8	12	34	10	4
FISKAR	2	3	0	6	0	3.5	1
SILVA	4	0	0	12	0	12	1
ASEMFO	3	0	0	4	0	6	2
EOS	3	0	0	0	0	22	1
KONE	1	0	0	1	0	4	1
ASFOR	4	0	0	3	0	11	1

Internal procedures for ensuring high-quality products

Deliverables' creation and submission

WP leaders are responsible for the timely execution of deliverables in accordance with their expected quality, together with the involved Task Leaders.

In terms of format, SINTETIC will always use MS Office, more concretely: ".doc" and ".docx" will be the most used ones. Before officially submitting deliverables in the Horizon Europe portal, the Project Coordinator will convert the documents into ".pdf". Templates were already provided to consortium, stored for everyone in the Teams workspace (inside the General channel inside the templates folder) and they will be strictly used. As a proposed system to name the documents we suggest using the following one as an example.

Version	Name
Draft	SINTETIC-deliverable_draft-D<Deliverable_Number>- v<Number> Example: SINTETIC-deliverable_draft-D7.1-v0.1.docx
Final	SINTETIC-deliverable-D<Deliverable_Number> Example: SINTETIC-deliverable-D7.1.docx Example: SINTETIC-deliverable-D7.1.pdf

To ensure effective deliverables' peer-review, SINTETIC has assigned two **reviewers** per deliverable:

- First reviewer: the WPL or someone with right expertise to provide content-wise evaluation.
- Second reviewer: Project Coordinator and CTFC members.

Due to de complexity of some of the deliverables an additional reviewer might be needed to ensure a high quality. It will be appointed by either the WPL or the PCU if considered that way.

The **reviewers** were assigned and agreed as follows:

Table 5 SINTETIC Deliverables and its reviewers, with deadline for the revision and deadline for the final submission to the EC.

Deliverable	Lead	Reviewer 1	Revision Due date	Submission date
D1.1. System Requirements of the overall system and the specific users (data and interfaces)	UEF	LAMMA	16/10/2023	30/11/2023
D1.2. Data Management Plan (1st version)	CNR	TREE	16/10/2023	30/11/2023
D1.3. Data Management Plan (2nd version)	CNR	BLUEB	15/08/2023	30/09/2025
D1.4. Data Management Plan (final version)	CNR	TREE	15/10/2026	30/11/2026
D1.5. Geospatial and platform data model, conceptual scheme	LAMMA	TREE	16/02/2024	31/03/2024
D2.1. Prototypes development report detailing the technical characteristics and pre-test results of the prototypes (hardware and software)	INNO	UEF	16/04/2025	31/05/2025

Deliverable	Lead	Reviewer 1	Revision Due date	Submission date
D2.2. Report detailing the operative feedback from demos and the upgrades done accordingly on the prototypes	INNO	UNITBV	16/05/2026	31/05/2026
D2.3. Marking and tracking system for trees and timber products	OTME	CNR	15/08/2024	30/09/2024
D2.4. Smartphone-APP for timber measuring, grading and tracking	ARBO	TREE	15/10/2024	30/11/2024
D2.5. Web APP to process and report forestry inventory information (Forest HQ)	TREE	ARBO	16/04/2025	31/05/2025
D2.6. Prototype of forest harvester with tracking functions and quality sensors	OTME	CNR	15/10/2024	30/11/2024
D2.7. Quality assessment and traceability systems in sawmill	MiCRO	INNO	16/04/2025	31/05/2025
D3.1. Geodatabase of all data and metadata provided by sensors and forest machinery	CNR	TREE	15/10/2024	30/11/2024
D3.2. Data procedures and algorithms to services, source code	CNR	UEF	16/04/2025	31/05/2025
D3.3. The SINTETIC platform GUI	TREE	CNR	16/05/2026	31/05/2026
D4.1. Demonstration plan of all the planned demos	CNR	UNITBV	16/06/2025	31/07/2025
D4.2. Integrated web platforms and portable digital tools to enhance forest management of fragmented forests	BLUEB	TREE	16/05/2026	31/05/2026
D4.3. Testing and evaluating the developed prototypes and technologies (harvester, smartphone app, sawmill sensors, etc.)	UNITBV	CNR	16/05/2026	31/05/2026
D4.4. Final report of all demos listing scientific and dissemination results	UNITBV	CNR	13/01/2027	28/02/2027
D5.1. Wood quality models relating timber properties with stand and process data	UEF	MICRO	16/05/2026	31/05/2026
D5.2. Terrestrial laser scanning inventory of standing trees for stand health assessment and for tree optimal bucking	UEF	UNITBV	16/05/2026	31/05/2026
D5.3. Satellite alert system against illegal logging	CNR	UNITBV	16/05/2026	31/05/2026
D5.4. Economic and technical assessment of the implementation of SINTETIC technologies developed (harvester, smartphone APP, portable sensors)	UNITBV	CNR	17/08/2026	30/09/2026
D5.5. Terrestrial laser scanning inventory of standing trees for stand heath assessment and for tree optimal bucking (Final version)	UEF	UNITBV	16/05/2027	31/05/2027

Deliverable	Lead	Reviewer 1	Revision Due date	Submission date
D5.6. Satellite alert system against illegal logging (Final version)	CNR	UNITBV	16/05/2027	31/05/2027
D6.1. Communication and dissemination plan (update 1st Interim Report)	CTFC	EOS	16/10/2023	30/11/2023
D6.2. Communication and dissemination plan (update 2nd Interim Report)	CTFC	EOS	16/05/2026	31/05/2026
D6.3. Practice abstract - batch 1	CNR	UNITBV	17/04/2025	30/04/2025
D6.4. Practice abstract - batch 2	CNR	UEF	16/02/2027	31/03/2027
D6.5. Training to digitalization of forest operators	CTFC	FMMF	16/11/2026	31/12/2026
D6.6. White Paper on SINTETIC contribution addressing the EUDR 16298/22 EU legislation requirements	EOS	INNO	15/10/2024	30/11/2024
D6.7. Business uptake and exploitation plan (Initial phase)	CNR	EOS	16/10/2023	30/11/2023
D6.8. IPR and Knowledge management strategies (1st version)	CTFC	UEF	16/10/2023	30/11/2023
D6.9. IPR and Knowledge management strategies (update Final version)	CTFC	UEF	16/05/2026	31/05/2026
D6.10. Policy brief 1 - Privacy issues with digital data	KONE	ASEMFO	16/12/2024	31/01/2025
D6.11. Policy brief 2 - Early quality assessment of timber products	CNR	UNITBV	17/04/2025	30/04/2025
D6.12. Policy brief 3 - Digitalized wood value chains addressing EUDR 16298/22	EOS	ASFOR	17/08/2026	30/09/2026
D6.13. Communication and dissemination plan (update Final Report)	CTFC	EOS	16/05/2027	31/05/2027
D6.14. Business uptake and exploitation plan (Mid phase)	CNR	INNO	15/10/2024	30/11/2024
D6.15. Business uptake and exploitation plan (Final phase)	CNR	EOS	16/05/2026	31/05/2026
D7.1. Project management plan	CTFC	CNR	18/09/2023	31/10/2023
D7.2. Protocol for impact assessment of the economic, social and environmental outcomes of the project	CTFC	UNITBV	15/08/2024	30/09/2024

An updated table with all reviewers and deadlines can be found in the SINTETIC Teams workspace in the General Channel inside the Contacts folder.

In order to facilitate this process, the SINTETIC consortium will proceed with the following steps (see Figure 8):

- **Completion of the first draft of the deliverable and start review**: By this date (45 days before the submission date) the first draft of the deliverable needs to be completed by the Lead Beneficiary, who will upload the document to SINTETIC shared folder (in the Teams' workspace) and will inform via email the 2 reviewers (Reviewer + CTFC) that the file is available online. For the deliverables in need of 3 reviewers the mail shall be sent to the three of them (Reviewer 1 + Reviewer 2 + CTFC).
- **End of the first review for the first draft of the deliverable**: By this date (30 days before the submission date) Reviewer 1 will upload on SINTETIC shared folder a new version of the document including comments and proposal of editing (in track changes). The Reviewer will inform the Lead Beneficiary as soon as its reviewed document is available online. For the case of the deliverables with 3 reviewers, the Reviewer 2 will do it simultaneously with Reviewer 1.
- **Completion of the second draft and start of the second review**: By this date (25 days before the submission date) the second draft of the deliverable needs to be completed by the Lead Beneficiary, who will upload the document to SINTETIC shared folder and will inform CTFC via email that the file is available online.
- **End of the second review for the second draft of the deliverable**: By this date (15 days before the submission date) CTFC will upload on SINTETIC shared folder a new version of the document including comments and proposal of editing (in track changes). CTFC will inform the Lead Beneficiary as soon as its reviewed document is available online.
- **End of the review for the second draft of the deliverable**: By this date (10 days before the submission date) the Lead Beneficiary will have completed the final version of the document considering the feedback received by the two reviewers (or three on the specified ones). By this date the final version will be uploaded to the SINTETIC folder and CTFC will be informed by the Lead Beneficiary. The remaining days will be used by CTFC for the final reading, the editing of the document, the conversion into pdf, and the submission to the EC Portal.

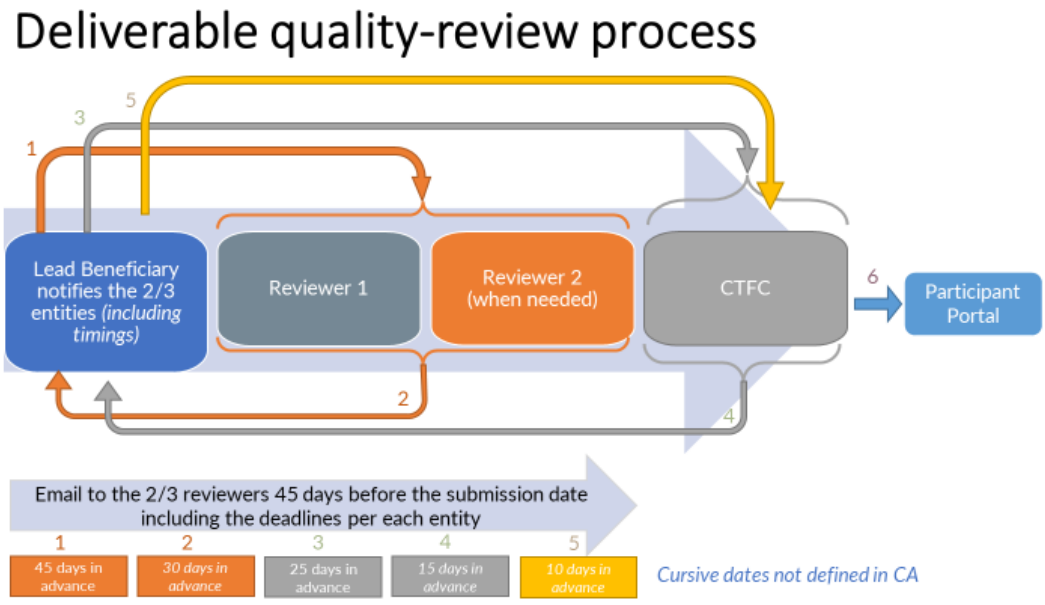


Figure 8 Deliverable quality-review process

Information management exchange and communication

This section refers to the general communication rules, the wider communication and dissemination activities are detailed in deliverable D6.1 “Communication and Dissemination Plan” developed by CTFC and the two further updates on this plan.

The focus of the communication procedures is to **list the tools that are at disposal of the partners** to grant a smooth communication allowing the whole consortium not only to correctly team working, but also to report timely the progress of the actions so that corrective measures can be undertaken duly in time.

The methods are:

- Collaborative tool – SINTETIC Microsoft Teams’ workspace
- Emailing
- Meetings

Collaborative Tool – SINTETIC Teams’ workspace

CTFC, in the role of SINTETIC Project Coordinator, has created a specific **Microsoft Teams’ workspace** for the consortium, providing access to all project’s members. This workspace is, by default, the tool that the consortium will use to share documents to optimise collaboration amongst its partners.

SINTETIC Intranet Teams’ workspace is composed by **WPs channels and folders** that should not be altered without Project Coordinator consent, to prevent loss of information or difficult navigation throughout the tool.

The different folders and channels are depicted in the following images:

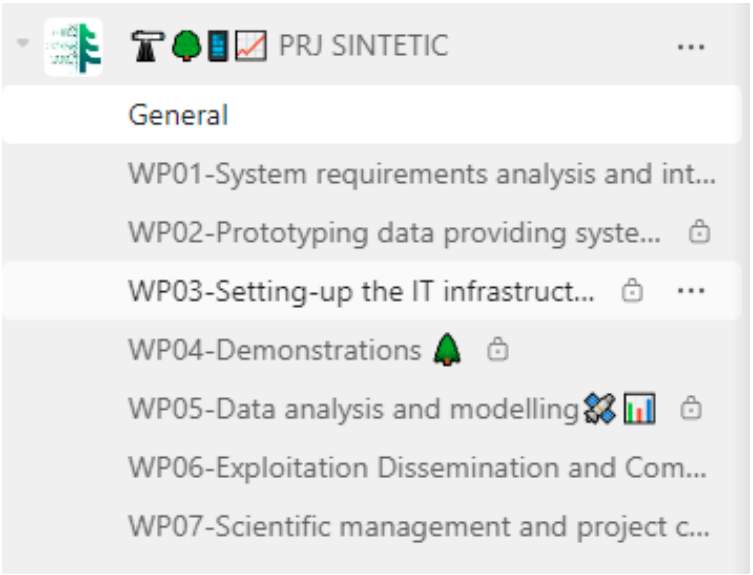


Figure 9 SINTETIC Intranet – workspace Channels

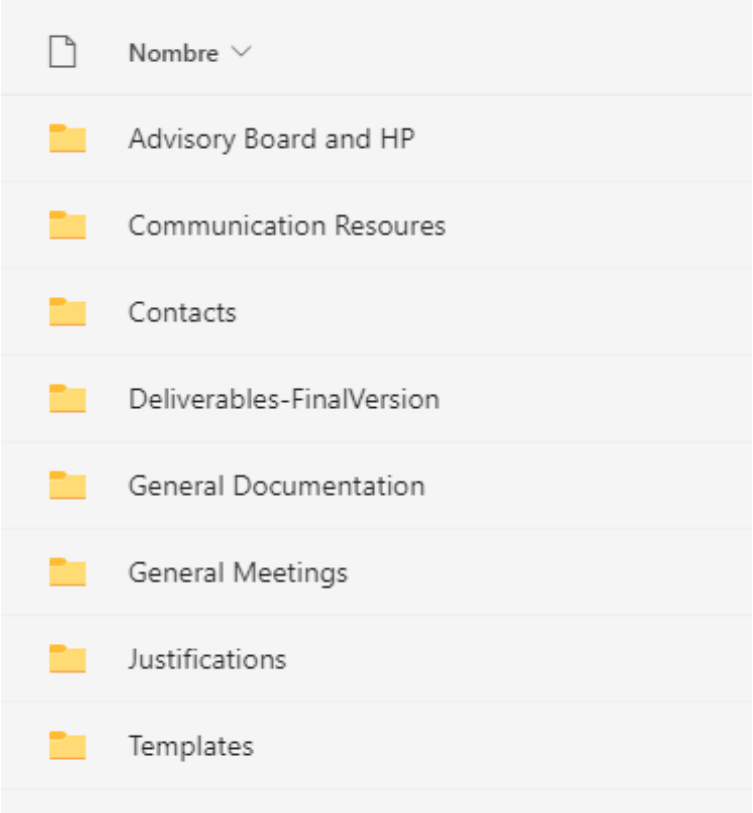


Figure 10 SINTETIC Intranet – General folder

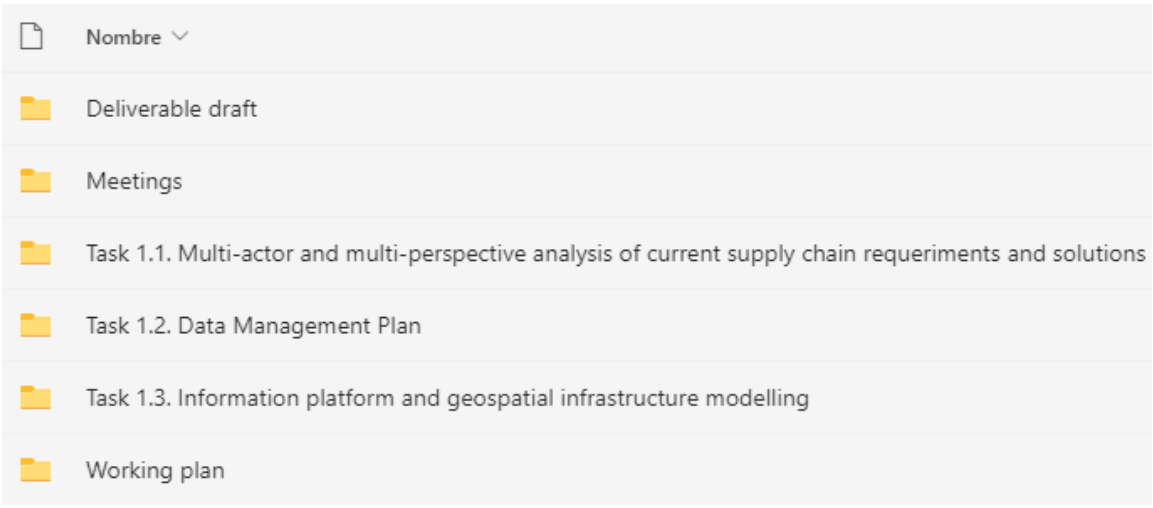


Figure 11 SINTETIC Intranet – example of WP1 folder

Besides this overall management by the Project Coordinator, each WP leader is responsible to manage the repository of information within its own channel, which encompasses a WP-specific mailing list that should be continuously updated by the WP leader and the Project Coordinator against personnel changes that could occur during the 4 years of the project.

Two subfolders should be the maximum that each WP leader has in its own folder, in order to facilitate the search for documents in the workspace, without having any other subfolder behind level 2 if not strictly necessary. For instance:

- Level 1: Subtask (inside a Task folder if specific subtasks are decided in a task).
- Level 2: Meetings.

Files management and upload

Microsoft Teams fulfils all security conditions so that all beneficiaries can share any kind of files needed for the day-to-day work, which includes:

- Draft versions of Deliverables allowing collaborative work.
- Final Versions of submitted Deliverables.
- Financial and Administrative documents related to the project.
- Internal progress reports.
- Communication resources (templates, etc.).
- Any other doc providing information considered interesting for the consortium.

"General Meetings" and each WP "Meetings" folders, where minutes of meetings shall be uploaded, deserves special attention, as they will allow all partners to consult major discussed points throughout the large number of meetings that will be held. Meeting organisers, being WP or task leaders, are responsible to guarantee that the minutes and used presentations are uploaded in the correct folder.

The meetings' minutes should include the following information (see meeting minutes template in Annex IV and in the Templates folder inside the General Channel):

- Participants.
- Agenda.
- Discussed topics.
- Next steps (with responsible partner(s) and deadline).
- For each meeting, a specific subfolder will be created and should be named as follows: **"YYYYMMDD_SINTETIC_[Meeting Title]"** (example: "20230608_SINTETIC_GA"). The folder structured the following way:
    - Agenda, Venue, Logistics, Participant Lists.
    - Minutes.
    - Pictures.
    - Presentations.

Emailing

Communication through emails is meant to be the main communication tool for collaboration among partners geographically dispersed. Its massive use, however, should be optimized to reduce avoidable bothers and to efficiently transmit the key figures of the communication.

For that purpose, good practices to be respected in the communication by email are:

- Deadlines are to be clearly specified in any action request through email.
- Subject of the email must include "**SINTETIC WPX Task X.X – [Subject]**" to facilitate the identification and mails searches.
- Start a new email thread for each new subject. Don't start a new subject in the middle of a mail about another subject.
- In case of absence or poor access to internet connection, it is highly recommended to configure an automatic replay, which should include alternative contacts for urgent matters.
- Big size attachments of should be avoided. Documents' sharing is preferably done through the Teams document repository of the project.
- Don't use "reply all" if it is not exactly necessary.

All people involved in SINTETIC project must have an email account. Each beneficiary must inform the coordinator about the contact persons for each task in which they are involved.

Each partner must inform WP leaders and Project Coordinator about the contact persons for each WP in which they are involved. A contact list is available in the "Contacts" Teams' folder. Coordinator and WP leaders will be in charge of updating the file according to beneficiaries' request, after all the partners have filled it for the first time.

To facilitate effective and efficient communication within the consortium, an excel file with all the persons involved in the different WPs and DSs, together with their contact mail, is provided in the SINTETIC Teams' workspace. This is a live document updated by the coordinators with the support by all partners.

Meetings

SINTETIC consortium will gather under different meeting and board settings. As for now, SINTETIC meetings are scheduled as follows:

Consortium meetings

Yearly consortium meetings, or as called in the GA, Interim Meetings (IM), will be held during the SINTETIC Project, with an expected attendance from all partners. The General Assembly meetings will be matched with the Consortium physical meetings when possible.

Table 6 Next SINTETIC Consortium Meetings

Month	Location	Host
M12 - May 2024	Romania (Brasov)	UNITBV
M21 - February 2025	Slovenia (Izola)	INNO
M31 - December 2025	Italy (Firenze)	CNR
M48 - May 2027	Belgium (Brussels)	EOS

Participation in **Consortium** and **General Assembly** meetings is **compulsory** for every partner, who will be represented with more than one representative if needed in order to be able to contribute to all kinds of planned sessions.

Project Management Team meetings

The **PMT** meetings will be held **every month, virtually**. Physical meeting will be held one time per year, back-to-back with the GA meeting when possible. The same decision-making principles are applied as in the GA.

The PMT meetings are formed by the Project coordinator Unit (chairing) and the WP Leaders.

Project review meetings

As stated in the GA 3 review meetings will be held during the project, two of them will be held together with the Consortium meetings. For these meetings the Work Packages Leaders, the project officer and the external reviewers will be involved. They will be held according to next table:

Table 7 SINTETIC Project review meetings

Month	Location
M21 - February 2025	Slovenia, together with 2nd IM
M39 - August 2026	France
M48 - May 2027	Belgium (Brussels), together with final conference

WPL and TL meetings

Each WP leader and Task leader is responsible to establish meetings accordingly to their own time plan.

As an advice regarding good practices for the meetings:

- Complex virtual meetings can be broken down into few sessions with a more focused schedule that allow to reduce the number of participants and /or the duration of each session.
- In any case, if the virtual meeting lasts longer than 90 minutes, a short break should be planned in the schedule of the meeting.

The schedule of the meeting should be designed in a way that people that need to stay for specific topics can leave as soon as those topics are closed.

As stated before, meeting organisers, being WP or task leaders, are responsible to guarantee that the minutes and used presentations are uploaded in the correct folder.

¡FOR ALL MEETINGS, THE MINUTES ARE MANDATORY!

Advisory Board meetings

As previously mentioned, the AB will meet **on annual basis** to steer the development of the project impacts and processes. Meetings will be chaired by the PCU, and the minutes taken after becoming final will be distributed to the GA members.

Problem management

Problem identification and control

Technical problems

In any type of project, in spite of a careful risk assessment, problems of different type are naturally generated due to technical, legal, organizational, personal or partner-related issues. In Annex III: Risk Register, a list with the risks that have already being foreseen is described. But also, a list of the risks in each WP are described in Annex I: WP data sheets.

The PMT will ensure that the problems arising during the execution of the project are actively and timely identified, analysed, and managed trough appropriate remedial or corrective actions.

SINTETIC problem management will be mainly performed by the PMT, but Task leaders, Demo site Leaders and any partner involved is also responsible to immediately report to their respective WPL any problem occurred or anticipated in the tasks they participate in.

Each problem will be assigned to a Problem Manager who will lead the measures to solve, minimize or in general address the issue identified and ensure that the problem will not affect the project results. Work Package Leaders will be initially assigned as problem Managers with the duty to report to the PMT the nature of the problem and, if possible, propose adequate remedial actions. In case of technical problems limited to a specific WP the WPL may propose a more suitable partner as problem Manager justifying the reasons behind such proposal (e.g., higher technical competences or direct involvement of such partner). While in case of major problems, which cannot be dealt with at WP level, the PMT will have the responsibility to solve the issue.

Partner related problems

In case of problems caused by a specific partner the PMT will be automatically assigned as Problem Manager.

Performance and timeliness of a partner

When a partner cannot perform its technical tasks both in terms of quality and timing, the WP leader shall report to the PMT. This is in charge to discuss and propose a schedule of remedial actions directly to the partner involved. If these do not return any clear improvement in the given time the PMT may decide to reiterate the process with the partner or arise the issue to the General Assembly. Possible consequences of such process could be:

- Suspension of the next interim payment;
- Transfer of part of the tasks and relative budget to other partner(s);
- Exclusion of the partner from the consortium.

Financial stability of a partner

The consortium has a shared technical and financial liability over the tasks of the project. In case of a financial stress suffered by a partner which may entail a risk to fulfil its tasks, it has the obligation to report to the PCU.

If the PCU will consider the issue a relevant treat to the project development will involve the PMT to carry on a risk assessment assess the risk entailed by the financial condition of the partner. Based on the reports, the work progress and the payments received by the partner will be used to assess its actual credit/debit condition. Upon this information the concerned partner will be interpellated regarding its capacity to carry on the contractual work for the next period.

This will allow the PMT and the General Assembly as ultimate instance to evaluate the technical and financial risk for the project. The latter will be used to decide the opportunity to provide the next interim payment to the partner or to request an audit certificate for the work done to date before any further payment may be authorized.

Reporting and payments

The SINTETIC project is divided in **three reporting periods** (RPs), covering different stages of the project, that shall be submitted to the EC by the Project Coordinator, with the contribution from all partners:

The precondition for reporting is the signature of the Grant Agreement by the Coordinator and the EU, which has already been done.

There are two types of reporting in the Grant Management Services at the Funding & Tenders Portal:

- **Periodic Reporting:** available at the end of a reporting period.*
- **Continuous Reporting:** available from the beginning of a project.

*Reporting periods serve to divide the project into regular periods for technical reporting and monitoring. They are expressed in months from the project starting date, are consecutive and cannot overlap.

Reporting periods are always linked to a payment, but depending on the type of payment they will involve only technical reporting or also financial reporting (for additional prefinancing: only technical; for interim/final payments: technical and financial).

Thus, SINTETIC presents the following reporting periods:

1st REPORT: M1 – M18 (Nov 2024) à Review EU M21 (Feb 2025)

2nd REPORT: M19 – M36 (May 2026) à Review EU M39 (Aug 2026)

FINAL REPORT: M37 – M48 (May 2027) à Review EU M48 (May 2027)

All reports are related with payments in case 100% costs have been duly justified.

In case of additional prefinancing, the financial reporting for all periods must be done later, at the next interim/final payment. For projects, where additional prefinancing is mixed with interim payments, the additional prefinancing must always precede the first interim payment.

What is periodic reporting?

- Report which is the pre-condition for receiving payments.
- Submitted through the EU Funding & Tenders portal within 60 days after the end of the reporting period (https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home/).

  For the FINAL REPORT, the deadline is 90 days after the end of the last period. Consortium partners will need to upload the information 30 days after the project reporting end date, to allow the Coordination to provide further revision if necessary.
- The Coordinator will review the information to check the consistency with the technical report and afterwards it will submit them, including requests for interim payment, to the Commission within the deadline (60 days after the end of each reporting period**). However, the Coordinator is not responsible for the partners' Financial Reports; each partner is the only responsible of the content of its Financial Report.**
- Costs not included in time will be considered as 0€ costs and cannot be claimed until the next periodic reporting. That means there is no opportunity to submit them within the same reporting period (only in the next reporting period).
- Final report: the final report to the EC will enclose more information than previous RPs. For this final report, Project Coordinator and WPLs will be collecting the following information:

- Technical final report.
- Achieved outcomes' overview and respective exploitation and dissemination of results.
- Project activities' conclusions.
- Social and economic impact of actions that were carried out.
- Financial final report.
- Financial statement final summary.
- Audits: Certificates on the Financial Statements (CFSs), for partners with more than 430.000€ as actual costs.

- Please find here the detailed information about the process to submit the periodic reporting. (https://webgate.ec.europa.eu/funding-tenders-opportunities/pages/viewpage.action?pageId=8913035)

Parts of the periodic reporting

1. **TECHNICAL REPORT:**
   a. PART A: contains structured tables with project information, which are generated by the IT system data from continuous and periodic reporting modules. It contains the following structure:
      1. Project summary.
      2. List of participants.
      3. List of deliverables.
      4. List of milestones (outputs / outcomes).
      5. List of critical risks.
      6. Project pathway to impact.
      7. Dissemination and communication activities.
      8. Financial support to third parties.
      9. Research infrastructure.

   b. PART B: narrative description of the work carried out during the reporting period. This must be downloaded from the Portal Technical Report – PART B / Termination Report Screen, completed and then assembled and re-uploaded as PDF on that screen. It contains the following structure:
      1. Explanation of the work carried out and overview of the progress.
         1.1. Objectives.
         1.2. Explanation of the work carried out per WP.
            1.2.1. WP1.
            1.2.2. WP2.
            1.2.3. …
         1.3. Impact.
         1.4. Update of the plan for exploitation and dissemination of results (if applicable).
         1.5. Access to research infrastructure.
         1.6. Resources used to provide access to research infrastructure.
      2. Exploitation primarily in non-associated third countries (if applicable).
      3. Open science.
      4. Deviations from ANNEX 1and ANNEX 2 (if applicable)
         5.1. Tasks / objectives.

5.2. Use of resources.

5.2.1. Unforeseen subcontracting (if applicable).

5.2.2. Unforeseen use of in-kind contributions.

2. **FINANCIAL REPORT:**
   - Composed by the individual financial statement (Annex 4 to the GA) for each beneficiary.
   - A summary financial statement (consolidated financial statement).
   - It is generated by the IT system on the basis of the financial information entered into the Periodic Reporting module (and any documents uploaded, e.g. CFS).
   - The Financial Report must be signed electronically by an authorized representative of each partner's entity. Please check, in advance, that the role of **Project Financial Signatory** is properly assigned and has not changed.
3. **ANNEXES:**

   1. Use of resources report (ANNEX 1 to PART B) uploaded directly on the platform.

   2. Certificate on the financial statements (CFS) (ANNEX 2 to PART B) with the template available on PORTAL REFERENCE DOCUMENTS.

How to prepare and submit it

The Periodic Reporting must be prepared by the consortium in the continuous and periodic reporting modules and then be submitted by the coordinator. It is opened after the end of the reporting period. It allows you to:

- Download and upload the PART B of the Technical Report (upload only by the Coordinator or specific selected partners).
- Complete their financial statements on-line (each beneficiary for themselves and their Affiliated Entities).
- Consolidate the individual financial statements into a summary financial statement (Coordinator).
- Submit the Periodic Report (Coordinator).

Continuous reporting

- Always open and can be updated at any moment during the project (submit deliverables, report on milestones, etc.)
- It automatically feeds part A of the periodic report.
- The Coordinator will be in charge to gather the needed information through the interim reports (requested every 6 months) and upload it to the funding & tenders portal (all partners can upload the information in a collaborative way but this can lead to saving problems, thus it is safer to be done only by one partner).
- It contains the same technical information than the periodic reporting, but without the Financial information and the Part B of the Periodic Report, which will only be available during the Periodic Reporting phase.
- Detailed guidance on how to submit the continuous reporting can be found here. (https://webgate.ec.europa.eu/funding-tenders-opportunities/display/IT/Continuous+Reporting)

Interim reports (including technical and financial reports)

The project will have the following internal reporting periods:

1st interim report: M1 – M6 (Nov 2023)

2nd interim report: M7 – M12 (May 2024)

3rd interim report: M13 – M18 (Nov 2024)

4th interim report: M19 – M24 (May 2025)

5th interim report: M25 – M30 (Nov 2025)

6th interim report: M31 – M36 (May 2026)

This will consist of reporting both technical and financial progress.

Regular reports will be compiled by the Coordinator from all partners to keep track on the developed activities. These will serve as the basis to prepare the Periodic Reports following the specific requirements of the EC administration.

According to the Grant Agreement, CTFC will coordinate the preparation of reports with the contribution of all the consortium. The PMT is responsible for the approval of the technic and financial reports for the European Commission.

The interim reports will:

- Include both Technical and Financial information.
- Claimed by the Coordinator every 6 months with a system based on trust and avoiding tough administrative and financial procedures.

Technical interim reports

- Technical progress on the task/s for each task responsible.
- This will be claimed by the Coordinator through a template based on the information needed for the periodic reporting. The information will be stored at the template in an accumulative way to keep the track of the progress for each partner. The template will include the following parts:
    - General questions or comments to WP leaders, Demo Site Coordinator or Project Coordinator.
    - Activities, main outcomes, meetings, progression of tasks, deliverables, milestones, dissemination activity (include authors, title…)
    - Persons involved.
    - Next steps.
    - Deviations.
- At least, every 3 months, the WPLs will shorty provide and update during the monthly PMT coordination meetings about the progress of their respective WP, which will be duly annotated in the minutes.

Financial interim reports

- Financial progress on the expenses carried out for each task of the project by each partner.
- Requested by the Coordinator through an excel template based on the project expenses and their related justifications. This also will be in an accumulative way to keep the track of the progress until reach the periodic reporting period (where the final costs for this specific period will be uploaded by each partner directly to the funding & tenders portal).
- The financial expenses must be duly justified and have supportive documentation, which won't be claimed by the Coordinator, but **MUST BE DULY STORED DURING THE PROJECT IMPLEMENTATION AND AT LEAST AFTER 5 YEARS FROM THE PROJECT END. THIS COULD BE CLAIMED BY THE EUROPEAN COMMISSION DURING AUDITS.** These supportive documents are:
    - **Timesheets:** template shared by the Coordinator where the staff expenses need to be tracked monthly, with both signatures from the employer and the supervisor. This also need to include time dedication to other EU projects and other activities, including holidays and other absences to clearly provide the full contract dedication.
      This system is just a proposal for time registration of personnel involved. If a partner has a registration system which is different than timesheets system and can clearly demonstrate the information needed, then this system is also valid. The minimum information required is: total

hours worked for a single worker per day, all of them related to projects involved and their WPs or to other works (non-EU funded for example) + absences and holidays. This also need to include the date and signature of the worker and the supervisor of such individual.

- **Proof of expenses:** project partners are responsible to keep all proof of expenses for all costs categories during the project implementation and at least 5 years after the project end.
  - **Personnel:** contracts, payslips, social charges, and proof of payment.
  - **Subcontracting:** different budgets and all procedure documents ensuring best value for money, contracts and proof of payment.
  - **Travels:** all tickets related to expenses and their respective proof of payment. That includes plane tickets and other transportation tickets.
  - **Equipment:** different claimed offers and all procedure documents ensuring best value for money, contracts and proof of payment.
  - **Other goods:** different claimed offers and all procedure documents ensuring best value for money, contracts and proof of payment.
- All expenses need to be duly referenced with the project code (**Project 101082051 – SINTETIC**) **and include description of the specific items charged with the WP and task references to track the expenses.**
- Expenses not duly justified can lead to the loss of the EC financing.

Payment periods

Project Coordinator has already proceeded with the **pre-financing** to the beneficiaries of the consortium.

As stipulated by Article 21.2 of the Grant Agreement, an amount of 377.382,50€, representing **5% of the maximum grant amount**, was retained by EC Agency and transferred into the “Guarantee Fund”. This amount will be released at the payment of the balance, as described in Article 21.4 of the Grant Agreement.

As for the other – **interim** – **payments**, the reimbursement will be in accordance with the eligible costs that were incurred for the implementation of the Description of Action activities that were performed during the corresponding RPs, so as defined in Grant Agreement’s Article 21.3.

The **payment of balance**, subject to the approval of the final report, will reimburse remaining eligible costs incurred by the consortium. Article 21.4 sets the rationale underlying this payment.

Regarding the **lifecycle of the reporting**, see Figure 12 SINTETIC Reporting ScheduleFigure 12 for the detail on how the reporting and payments schedule works.

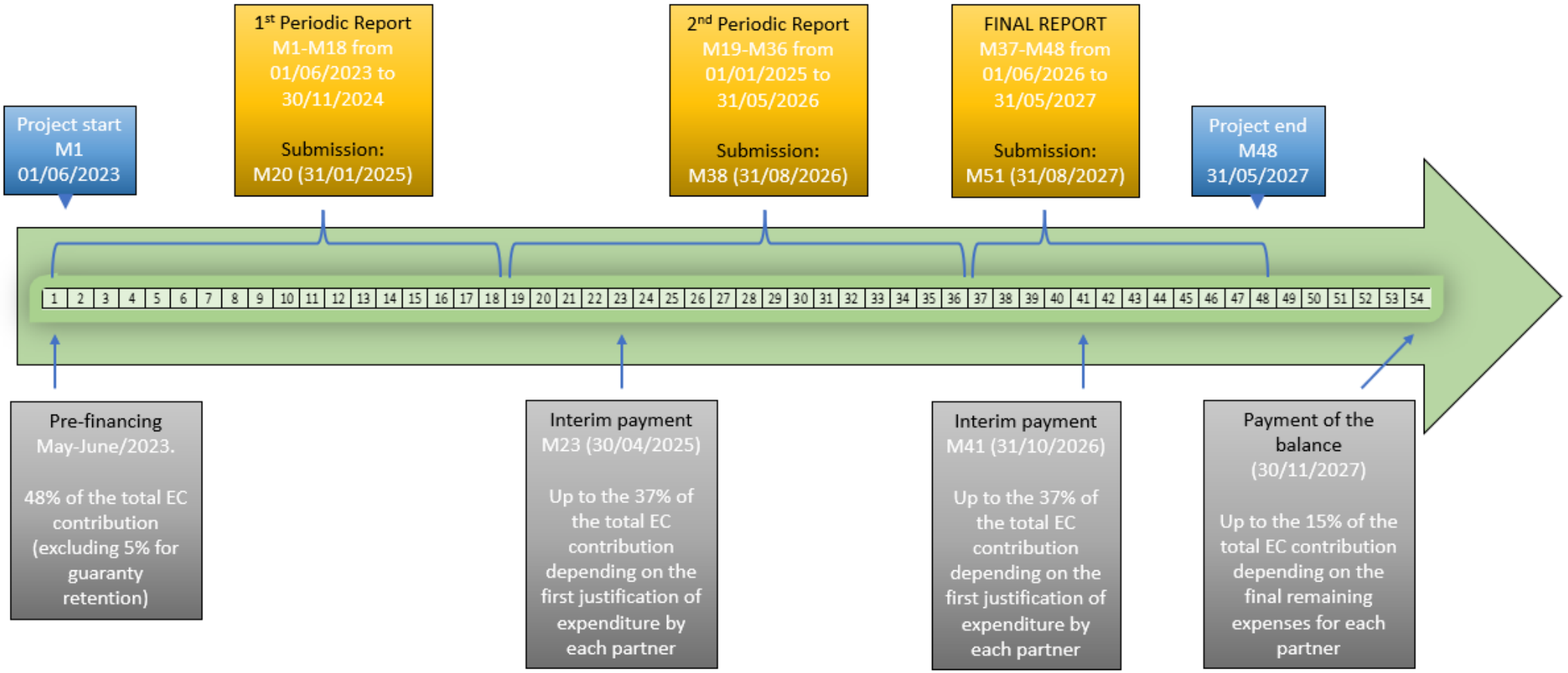


Figure 12 SINTETIC Reporting Schedule

D7.1 Project Management Plan Annex

Annex I: WP data sheets

This document contains the information currently at the time of preparation. Since we are at the beginning of the project, and some works and tasks are still being discussed, the content of this document may change significantly in the future.

WP1 – System requirements analysis and interoperability

WP1 defines the overall system requirements in a multi-actor context. It will consider not only the technical aspects (data formats, integration, etc.) mainly provided by WP2, but will also consider social and commercial aspects to be integrated in the planning phase necessary to implement the system (WP3) and to exploit it (WP6).

Task 1.1. Multi-actor and multi-perspective analysis of current supply chain requirements and solutions

Work package title

System requirements analysis and interoperability

Task title

Multi-actor and multi-perspective analysis of current supply chain requirements and solutions

Contact person and institution

Mari Selkimäki, University of Eastern Finland (UEF), School of Forest Sciences. mari.selkimaki@uef.fi

Timeline (in months)

M01-M06

Description

A detailed investigation, analysis and comparison of the solutions currently deployed to track physical items and to manage and process information within the forestry timber supply chain will be performed. The stakeholders of the forest value chain will provide a critical analysis of the existing issues, define expected requirements and expectations related to digitalization processes of the whole sector. Technical, economic and social aspects will be considered and weighted in terms of impact and expectations. The complex quality characteristics for raw resources, including trees, logs and timber assortments, will be analysed in the context of environment, silviculture and/or circular economy, among others.

The actions for obtaining the information will be done by literature review and questionnaire to project partners to collect information of the existing technologies, obstacles, and the future expectations. Results of the questionnaire will give valuable information for other tasks. This task does not need results from other tasks.

Planned workshops/events

Planned event	Expected audience	Month
Informal WP1 meeting	Task leader and all partners	M4

Relevant deliverables and milestones

Deliverables:

D1.1. System Requirements of the overall system and the specific users (data and interfaces) (Document, report → SEN): Report listing and organizing the data and interface requirements of the overall system and the specific users. The report reviews and synthetises the existing solutions for traceability within the timber supply chain. The report includes the technical, economic and social aspects and identifies relevant stakeholders and provides analysis of the existing issues, current state-of-the-art, and defines requirements and expectations related to digitalization processes of the whole sector based on questionnaires (T1.1). (M06) **(UEF)**

Milestones:

Task timetable

Task 1.1. Multi-actor and multi-perspective analysis of current supply chain requirements and solutions		2023						2024												2025												2026												2027				
Number	Activity Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D1.1 System Requirements of the overall system and the specific users (data and interfaces)																																																

Roles and responsibilities

Partner	Action
UEF	Task leader and questionnaires seder/collector and state-of–the-art editor, socio economical and ethics analysis and impact evaluation, PMP link, WP5 link
CTFC	Support coordination and managing
MiCRO	Sawmill state-of-the-art contributor
BLUEB	App/web-interface state-of-the-art contributor
OTME	Traceability and forestry information contribution
SIMTRO	Forestry owner point of view
UNITBV	
INNO	WP2 link

Partner	Action
FMMF	Forestry owner point of view
TREE	App/web-interface state-of-the-art coordinator, stakeholder online form implementation, WP3 link
PIVET	Sawmill point of view
CNR	DMP task 1.2 link, inventory data and requirements contribution
ARBO	
BOSCAT	
LAMMA	Geodatabase task 1.3 link, inventory data and requirements contribution
FISKAR	Sawmill point of view
SILVA	
ASEMFO	
EOS	WP6 link
KONE	
ASFOR	

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
1	People do not answer the questionnaire	Medium	Low	Sending reminders

Estimated resources in terms of PM

PARTER	WP1 - System requirements analysis and interoperability (LAMMA) - (June 23 - November 26)
	T1.1
	Jun23 - Nov23
CTFC	1
MICRO	2.5
BLUEB	2

OTME	3.5
SIMTRO	0.25
UNITBV	1.5
INNO	1.5
FMMF	2
TREE	3
PIVET	1.5
CNR	5
ARBO	0.5
BOSCAT	1
LAMMA	5
UEF	**4**
FISKAR	0.5
SILVA	1.5
ASEMFO	1
EOS	1
KONE	0.25
ASFOR	1.5
TOTAL	**38**

Health and safety

Not Applicable

Legal issues

Authorizations, constrictions, etc.

Reviewed by:

WP Leader: Manuela Corongiu Date: 31/10/2023

Task 1.2. Data Management Plan

Work package title

System requirements analysis and interoperability

Task title

Data Management Plan

Contact person and institution

Tiziana de Filippis. Consiglio Nazionale delle Ricerche (CNR) tiziana.defilippis@ibe.cnr.it

Timeline (in months)

M04-M42

Description

The overall project's data management will be formalized as a Data Management Plan (DMP). The plan will describe all relevant aspects such as: definition of the data sources, data flows, security and privacy assurance, data features, data availability, data certification, data openness and/or availability, data storage, file formats and standards to be adopted for the project needs. The DMP will provide an outline of how the data will be managed, shared, and preserved using FAIR (Findable, Accessible, Interoperable and Re-usable) data principles. The DMP will evolve along the project implementation. It will start as a general overview of the data management strategy at the early stage. A detailed and completed life-cycle organization and description of both data and related flows will be developed at the final stage. This task will include: a) the SINTETIC multi-source data inventory, b) the definition of the content requirements relevant to the project definition such as datasets identification, selection and organization, together with specification of data formats and relevant standards and c) the development of the Data Catalogue Services (CS) and technical mechanisms for managing data aspects (both data and metadata). Three updates of the Data Management Plan will be delivered in M6, M28, M42 (D1.2, D1.3, D1.4) respectively.

Planned workshops/events

Planned event	Expected audience	Month
Intermediate meeting DMPv1	All partner	M5
Intermediate meeting DMP v2	All partner	M27
Intermediate meeting DMP v3	All partner	M41

Relevant deliverables and milestones

Deliverables:

Deliverable D1.2 – Data Management Plan (1st version) (Data Management Plan → PU): Plan detailing the management of data sourced and shared during and after the project execution. The DMP describes data management strategy during and after the project execution, how data will be collected or generated, and how they will be organized, stored, and shared according to the FAIR (Findable, Accessible, Interoperable and Re-usable) principles. The DMP is a living document to be updated as the project implementation progresses and when significant changes occur. (T1.2) (M06) **(CNR)**

Deliverable D1.3 – Data Management Plan (2nd version) (Data Management Plan → PU): Second update on the Data Management Plan. (T1.2) (M28) **(CNR)**

Deliverable D1.4 – Data Management Plan (final version) (Data Management Plan → PU): Last version of the Data Management Plan. (T1.2) (M42) **(CNR)**

Milestones:

Task timetable

Task 1.2. Data Management Plan		2023						2024												2025												2026												2027				
Number	Activity Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D1.2. Data Management Plan (1st version)																																															
2	D1.3. Data Management Plan (2nd version)																																																
3	D1.4. Data Management Plan (final version)																																															

Roles and responsibilities

Partner	Action
CNR	1.2 task leader, information inventory structure & contents
CTFC	General overview and PMP link and dependencies
MiCRO	
BLUEB	DMP structure contribution
OTME	
SIMTRO	
UNITBV	
INNO	
FMMF	
TREE	DMP structure contribution, provide data samples. WP3 Link

Partner	Action
PIVET	
ARBO	
BOSCAT	
LAMMA	Information inventory structure & contents contribution, task 1.3 link
UEF	Information inventory structure & contents contribution, task 1.1 and WP5 link
FISKAR	
SILVA	
ASEMFO	
EOS	WP6 link
KONE	
ASFOR	

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
1				

Estimated resources in terms of PM

PARTER	WP1 - System requirements analysis and interoperability (LAMMA) - (June 23 - November 26)
	T1.2
	Sep23 - Nov26
CTFC	1
MICRO	1
BLUEB	1
OTME	1
SIMTRO	0.5
UNITBV	1

INNO	1	
FMMF	1	
TREE	2	
PIVET	1	
CNR	**5**	
ARBO	1	
BOSCAT	1	
LAMMA	3	
UEF	1	
FISKAR	1	
SILVA	1	
ASEMFO	1	
EOS	1	
KONE	0.5	
ASFOR	1	
TOTAL	**27**	

Health and safety

Not Applicable

Legal issues

Authorizations, constrictions, etc.

Reviewed by:

WP Leader: Manuela Corongiu Date: 11/08/2023

Task 1.3. Information platform and geospatial infrastructure modelling

Work package title

System requirements analysis and interoperability

Task title

Information platform and geospatial infrastructure modelling

Contact person and institution

Manuela Corongiu. Laboratorio di Monitoraggio e Modellistica Ambientale per lo sviluppo sostenibile - (LAMMA). corongiu@lamma.toscana.it

Timeline (in months)

M04-M36

Description

The general outline and specific requirements for the information platform to be deployed in WP3 will be defined on the basis of Task 1.1 and Task 1.2 results. The model of project information will be formalized in direct readable machine language. In addition, the Geodatabase conceptual will be designed and specified, defining the data models and encodings for all new machines, sensors, data acquisition system and custom developed APPs (WP2). The technical details of the traceability system and its continuity assurance for the whole timber supply chain will be categorized. Finally, the task will identify Smart solutions to measure, transmit, integrate and process all relevant information to be reported to WP2, WP3 and WP5. This task will apply Participative Design techniques and focus groups for collecting user requirements in order to guarantee accessibility and usability of the SINTETIC platform.

Planned workshops/events

Planned event	Expected audience	Month
Preliminary meeting	1.1 and 1.2 Task Leaders, WP2, WP3, WP4, WP5 Leaders, all partners	M5
Intermediate meeting	1.1 and 1.2 Task Leaders, WP2, WP3, WP4, WP5 Leaders, all partners	M7
Maintenance/feedback meetings	WP2, WP3, WP4, WP5 Leaders, all partners	M18, M24, M36

Relevant deliverables and milestones

Deliverables: Deliverable D1.5 – Geospatial and platform data model, conceptual scheme (Document, report → PU): Report that will describe the Geospatial Data Model in terms of conceptual/application schema and language according to ISO TC /211 standards (19101, 19103, 19109) in order to specify contents, structure, and relationships of the geodatabase in a formalised way, through the UML language. Moreover, in such a Geo-data model, sensor

encodings as well as technical details about the traceability system will be included. In fact, this report represents the starting point to physically implement the geo-DB as described in WP3 task 3.1 on the bases of the results of WP2. (T1.3). (M10) **(LAMMA)**

Milestones:

Ms1.1 – Data flow diagram created: Geospatial, flow, platform data model formalised by UML schemas. (SOBJ7). (M08) **(LAMMA)**

Task timetable

Task 1.3. Information platform and geospatial infrastructure modelling		2023						2024												2025												2026												2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D1.5. Geospatial and platform data model, conceptual scheme																																															
2	Ms1.1. Data flow diagram created																																															

Roles and responsibilities

Partner	Action
LAMMA	Task 1.3 leader, Tasks 1.1 and 1.2 link, UML data requirement and flow specs, dependencies with WP2, WP3, WP4, WP5
CTFC	General overview and PMP link and dependencies, all partners
MiCRO	Sawmill point of view requirement calibration
BLUEB	Digital/infrastructure point of view requirement calibration
OTME	Forestry owner/management point of view requirement calibration
SIMTRO	
UNITBV	
INNO	prototype point of view requirement calibration
FMMF	
TREE	Digital/infrastructure point of view requirement calibration, WP3 dependencies
PIVET	Sawmill point of view requirement calibration
CNR	Task 1.2 link, UML data requirement and flow specs, dependencies with WP3, WP3, WP4, WP5
ARBO	
BOSCAT	
UEF	Task 1.1 link, dependencies with WP5
FISKAR	Sawmill point of view requirement calibration
SILVA	
ASEMFO	

Partner	Action
EOS	WP6 point of view requirement calibration
KONE	
ASFOR	

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
1				

Estimated resources in terms of PM

PARTER	WP1 - System requirements analysis and interoperability (LAMMA) - (June 23 - November 26)
	T1.3
	Sep23 - May26
CTFC	1
MICRO	2.5
BLUEB	2
OTME	3.5
SIMTRO	0.25
UNITBV	1.5
INNO	1.5
FMMF	2
TREE	5
PIVET	1.5
CNR	5
ARBO	0.5
BOSCAT	1
LAMMA	**8**

UEF	1
FISKAR	0.5
SILVA	1.5
ASEMFO	1
EOS	1
KONE	0.25
ASFOR	1.5
TOTAL	**42**

Health and safety

Not Applicable

Legal issues

Authorizations, constrictions, etc.

Reviewed by:

WP Leader: Manuela Corongiu Date: 11/08/2023

WP2 – Prototyping data providing systems.

Task 2.1. ID detection systems

Work package title

Prototyping data providing systems

Task title

ID detection systems

Contact person and institution

Bengt Sörvik, Otmetka Holding AB (OTME), bengt.sorvik@otmetka.com

Timeline (in months)

M03-M36

Description

"All prototypes will be developed within M24, but they will be iteratively updated according to the results of the field demos within M36."

A set of systems will be developed for marking standing trees in the forest and the processed roundwood (logs) with a unique ID readable with digital sensors. Two technologies will be deployed combined or individually in order to meet all the potential market requirements: Radio Frequency Identification (RFID) and an optical marking system (code punching). These will be integrated to develop several tools and services:

a) Manual marking systems for standing trees and roundwood,

b) Machine-carried system for marking roundwood and

c) Portable and fixed systems for automatic identification of trees and roundwood throughout the value chain (from forest to mill).

The latter will be installed and deployed in the sawmill to detect the ID of roundwood brought to the X-ray CT scanner by the conveyor belt, identifying simultaneously punched codes and/or RFID tags. Around M16 the first prototype will be released (MS2.1) and a report detailing the characteristics and pre-test results will be delivered in M24 (D2.1) and its respective operative feedback from demos and upgrades applied in M36 (D2.2). Marking and tracking system for trees and timber products will be developed under this task (D2.3 in due date M16).

- **LogHammer** 2.0 containing solution for punching technology and RFID from SIMTRONA. Expected to be ready for preliminary test M14. This version will not at this time have other functionality than it can stamp codes with or without RFID. (M14)
- **LogHammer**, 2.1 updated will also include system for setting codes, reading codes with ARBOREAL and add data from APP. This must be determined later with ARBOREAL. (M16)
- **LogMarker** 2.0 is a pre step for the last version 3.0 which will be installed in a new saw box. Test of functionalities will be done in a test rigg in our workshop. Only punch marking. (M10)
- **LogMarker** 2.1 like 2.0 but now also with RFID added. (M11)
- **SawBox** 1.0. Designed to build in LogMarker 3.0 that will include OtmetkaID and RFID (M12)
- **LogMarker** 3.0. Adopted to fit in SawBox 1.0 with full functionality which means OtmetkaID and RFID. (M14)
- **OtmetkaID** 1.0. First AP that can read OtmetkaID in combination with RFID with an APP in field or at SawMill.

Planned workshops/events

Planned event	Expected audience	Month
LogMarker with OtmetkaID, ver. 1 (harvester)	To confirm final solution before adjusting into cut to length harvesting head. Build with stamping OtmetkaID. Internal work.	2024-03

Planned event	Expected audience	Month
LogMarker 2.1 with OtmetkaID + RFID (not installed in saw box)	Will discuss this later with SIMTRONA.	2024-04
Deliverance of new harvester	Expected date	2024-05
LogMarker with OtmetkaID + RFID, ver. 2 (harvester)		2024-08
New sawbox to use for LogMarker, design ready	Meeting INNO and discuss sensor technology in Izola	2023-10
LogHammer 2.0	Will be a cooperation with SIMTRONA (first prototype already done). The LogHammer will have both RFID from Simtrona and punching system with OtmetkaID.	2024-07
Log Hammer 2.1	Cooperation with ARBO.	2024-09

Relevant deliverables and milestones

Deliverables:

D2.1. Prototypes development Report detailing the technical characteristics and pre-test results of the prototypes (hardware and software) (Document, report → PU): During its final development stage the SINTETIC prototypes will undergo separate pre-tests rounds in real or close-to-real scenarios (e.g. the smartphone APP can be tested on logs in the developers' yard). The report will be a cross-task deliverable, detailing for each prototype the tests accomplished and the corresponding adjustments to the original design of the prototype (if any). Prototypes involved are the optical/electronic system marking and tracing system (T2.1), the Smartphone APP (T2.2), the harvester equipped with LiDAR and sensorized processor head (with marking system and wood quality sensors) (T2.3) and the sawmill sensors (T2.4). (M24) **(INNO)**

D2.2. Report detailing the operative feedback from demos and the upgrades done accordingly on the prototypes (Document, report → PU): The SINTETIC prototypes after deployment will be extensively tested during series of demonstrations. All the experiences as regarding performance, feasibility, reliability, safety of operation, time and cost analysis and quality of generated data will be continuously collected and analysed. These will be discussed periodically by all the involved partners with the objective of identification of the optimal upgrading strategy and overall improvement of the SINTETIC system's performance. The Report will summarize all the individual reports related to the optical/electronic system marking and tracing system (T2.1), the Smartphone APP (T2.2), the harvester equipped with LiDAR and sensorized processor head (with marking system and wood quality sensors) (T2.3) and the sawmill sensors (T2.4) (M36) **(INNO)**

D2.3. Marking and tracking system for trees and timber products (Demonstrator, pilot, prototype → SEN): Prototypes of manual and fixed optical/electronic ID reader successfully tested respectively in forest and in industrial conditions. The kit of prototypes will include:

1) a UHF-RFID combination of tags and manual applicator to mark standing trees and logs;

2) an UHF-RFID reader to acquire ID of the marked items and link it to the data provided by other systems (e.g. D2.4, manual sensors for quality determination);

3) handheld punching marker for optical marking of logs (final TRL5);

4) smartphone optical reader app (final TRL5);

5) fixed gateway at the sawmill with RFID and optical sensor for automatic ID identification (optical sensor with final TRL5).

Pre-validation data and results will be summarized in a report. (T2.1). Along with the prototypes itself, the deliverable will include a report and links to videos of the operating prototypes. (M16) **(OTME)**

Milestones:

Ms2.1 – Supply chain prototypes active: Images or video of the first release of each prototype of deliverables 2.1, 2.2 and 2.3. (SOBJ2). (M16) **(OTME)**

Task timetable

Task 2.1. ID detection systems		2023						2024												2025												2026												2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D2.1. Prototypes development report detailing the technical characteristics and pre-test results of the prototypes (hardware and software)																																															
2	D2.2. Report detailing the operative feedback from demos and the upgrades done accordingly on the prototypes																																															
3	D2.3. Marking and tracking system for trees and timber products																																															
4	Ms2.1. Supply chain prototypes active																																															

Roles and responsibilities

Partner	Action
OTME	Role of Partners in the work package: INNO is the WP leader and will contribute in designing and implementing of sensors on the hardware components; OTME coordinates two technical tasks related to hardware development of the ID detection systems and intelligent processor head. ARBO coordinates software development and integration of sensors with cell phone. MICRO coordinates development/integration of the sawmill sensors/scanners with the Geodatabase. CNR will support developments of ID readers and quality detection sensors. TREE will develop software tools for forest inventory, mobile phone applications and connections to the Geodatabase. BLUEB will develop software for conglomeration of forest owners. UNITBV will integrate services for illegal logging and quality assessment in the forest. UEF will support integration of the LiDAR sensor with processor. SIMTRO will develop and integrate RFID traceability system. PIVET and FISKAR will integrate and test prototypes at the production lines.
CTFC	
MiCRO	
BLUEB	

Partner	Action
SIMTRO	
UNITBV	
INNO	
TREE	
CNR	
UEF	

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
1	Delays in the development of prototypes	Medium	High	An “early warning” system to resolve risks as part of project management plan (D7.1) Demonstrations will start with the first system completed (manual or mechanical) as their use is independent
2	Prototypes do not perform as expected in terms of precision, reliability and/or robustness	Medium	High	The reiterate feedback from each demo, followed by system repair/improvement will allow to gradually solve this issue

Estimated resources in terms of PM

PARTER	WP2 - Prototyping data provider systems (INNO) - (August 23 - May 26)
	T2.1
	Aug23 - May 26
CTFC	0.5
MICRO	3
BLUEB	5
OTME	**16.25**
SIMTRO	11

UNITBV	1	
INNO	2	
TREE	1	
501CNR	2.5	
UEF	1	
TOTAL	**43.25**	

Health and safety

Not Applicable

Legal issues

Authorizations needed, legal constrains of the technology/models used.

Reviewed by:

WP Leader: Jakub Sandak Date: 31/10/2023

Task 2.2. Smartphone APPs for manual operations

Work package title

Prototyping data providing systems

Task title

Smartphone APPs for manual operations

Contact person and institution

Johan Ekenstedt, Arboreal AB (ARBO), johan.ekenstedt@arboreal.se

Timeline (in months)

M03-M36

Description

A smartphone-based app will be developed to offer tools for measuring tree stems across various sections, providing valuable data for timber log and bucking simulation. This app will be integrated with the log ID tracking

service (T2.1), enabling a comprehensive digitization of manual operations focused on measurement and tracking. The app will also capture tree information, including position (Galileo GNSS), timestamp, species, and the number of stems (Stocking). Leveraging the built-in smartphone sensors like the colour camera, LiDAR, and GPS, the app will ensure precise tree measurements, delivering multiple measurements per tree. These measurements can then be utilized to estimate tree taper and facilitate timber log bucking simulation.

The mobile app will send the information to an inventory and bucking simulation web application will be developed to process inventory information and create digital inventory reports (D2.5). This web app will include analytics to create stem files from field data and virtual bucking simulation. The app will use field data collected by D2.4 Smartphone-APP and mapping information generated by the partners that can be useful for the inventory planning and analysis. The inventory and bucking results will be provided in an interactive digital report, where users can search, filter and inspect data, providing flexibility and full data traceability.

In addition, the most suitable Portable sensors for timber grading (e.g. Hitman HM 220, MTG, Fakopp, MiCROTEC Viscan) will be selected, interfaced with the main APP and tested in the field for early wood quality assessment.

The system will be validated in real operations, contrasting the in-field derived data with laboratory measures. The best performing solution(s) will be deployed and extensively tested in the project's demos (WP4).

All prototypes will be developed within M24, but they will be iteratively updated according to the results of the field demos within M36.

Around M16 the first prototype will be released (MS2.1) and a report detailing the characteristics and pre-test results will be delivered in M24 (D2.1) and its respective operative feedback from demos and upgrades applied in M36 (D2.2). The Smartphone APP for timber measuring, grading and tracking will be developed under this task (D2.4 in due date M18).

Activities:

- **Task 2.2.1: Smartphone-based APP and Inventory Web Application Design (ARBO,** TREE**,** ARBO, CNR, CTFC, UNITBV, UEF):
    - Conduct user requirement analysis to understand functionalities, features, and user expectations.
    - Design the user interface layout, navigation flow, and wireframes for the Inventory Web application.
    - Identify key components, such as data input forms, stem file creation tools, and report generation.
- **Task 2.2.2: Smartphone-based APP and Inventory Web Application Prototypes Development (ARBO**, TREE, CNR, CTFC)**:**
    - Develop Smartphone-based APP new functionalities
    - Develop backend components and API to handle inventory data transfer
    - Develop backend components for processing, stem file creation, and virtual bucking simulation
    - Develop the front-end interface of the Inventory Web application.
    - Implement data connections to transfer field data and mapping information to the D3.1 Geodatabase
- **Task 2.2.3: Smartphone-based APP and Inventory Web Application Prototypes Testing and Implementation (TREE,** ARBO, CNR, CTFC, UNITBV, UEF):
    - Deploy the Smartphone-based APP in a suitable smartphone
    - Deploy the Inventory Web application to a secure server, making it accessible to project stakeholders.
    - Perform functional testing to ensure accurate measurement in field, data transfer, stem file creation, virtual bucking simulation, and report generation.
    - Conduct usability testing to validate user interaction and smooth navigation.

Address any identified bugs, errors, or issues through iterative testing.

Planned workshops/events

Planned event	Expected audience	Month
External sensors – quality, identification	All participants in the WP 2.2	M07
Virtual demo of prototype	All participants in the WP 2.2	M10
Prototype evaluation	All participants in the WP 2.2	M13

Relevant deliverables and milestones

Deliverables:

D2.4 – Smartphone-APP for timber measuring, grading and tracking (Other→ SEN): A smartphone application that could collect 3D-data for standing tree and roundwood, tree status (e.g. standing, marked to be cut, cut etc.) and quality parameters (e.g. stiffness measured with portable sensor, species, presence of crown damage etc). The app should be able to acquire ID from RFID.

The app will acquire optical data from roundwood for identification of individual log. The data should be transmitted and be available in the Forest Inventory Web app where volume calculations can be done. (T2.2). The deliverable will provide a report, a link to videos designed to train to the use of the APP and the direct access to the APP (which will be possible to download and test with provisional user granted to reviewers) (M18) **(TREE)**

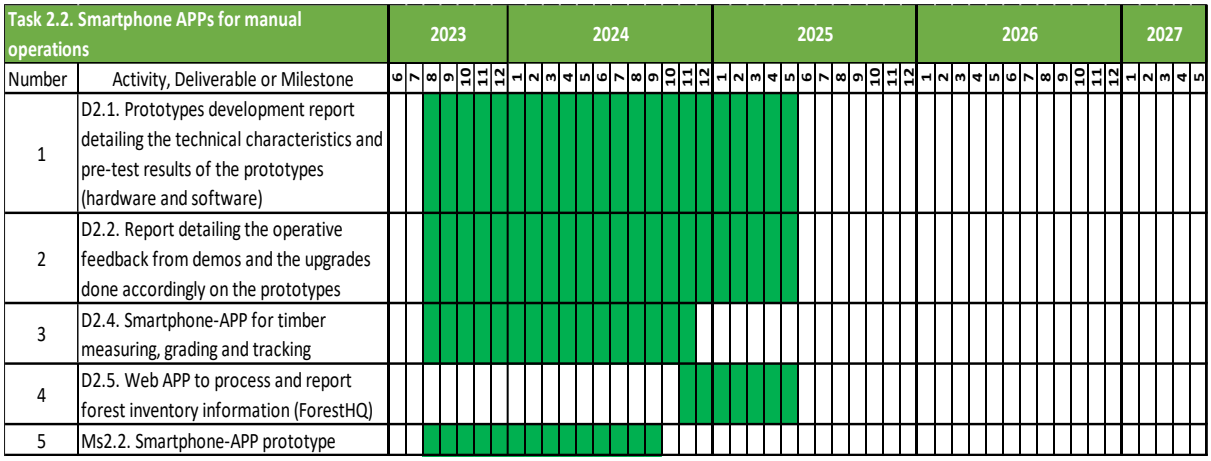
D2.5 - Web APP to process and report forest inventory information (ForestHQ) (Other → PU): A web application to process inventory information and create digital inventory reports. This web app will include analytics to create stem files from field data and virtual bucking simulation. The app will use field data collected by D2.4 Smartphone-APP and mapping information generated by the partners that can be useful for the inventory planning and analysis. The inventory and bucking results will be provided in an interactive digital report, where users can search, filter and inspect data, providing flexibility and full data traceability. (T3.3) The deliverable will be available for review through access to the Web APP and a guide for users. (M24) **(TREE)**

Milestones:

Ms2.2 – Smartphone-APP prototype: Images or video of the first release of the prototype of D2.4. (SOBJ1). (M16) **(ARBO)**

Ms2.3 – Web-APP for inventory prototype: Images or video of the first release of the prototype of D2.5. (SOBJ1). (M24) **(TREE)**

Task timetable



Roles and responsibilities

Partner	Action
ARBO	ARBO creates the smart phone app and distribute it to the participants in the project.
CTFC	General coordinator
MiCRO	MICRO coordinates development/integration of the sawmill sensors/scanners with the Geodatabase.
OTME	OTME coordinates two technical tasks related to hardware development of the ID detection systems and intelligent processor head. OTME Creates a handheld device that marks the log and could transfer the data to the smartphone app in the field OR creates a service that could identify the marker on the log, the smartphone app needs to collect an image of the marker that could be used for identification later in the data flow.
SIMTRO	SIMTRO will develop and integrate RFID traceability system.
UNITBV	UNITBV will integrate services for illegal logging and quality assessment in the forest.
INNO	INNO is the WP leader and will contribute to designing and implementing of sensors on the hardware components;
TREE	TREE will develop a webapp, including tools for forest inventory analysis and log product bucking. This also includes the connection to the Geodatabase to transfer relevant data
CNR	CNR will support developments of ID readers and quality detection sensors.
UEF	UEF will support integration of the LiDAR sensor with processor.

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
1	Delays in the development of prototypes	Medium	High	An “early warning” system to resolve risks as part of project management plan (D7.1)

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
				Demonstrations will start with the first system completed (manual or mechanical) as their use is independent
2	Prototypes do not perform as expected in terms of precision, reliability and/or robustness	Medium	High	The reiterate feedback from each demo, followed by system repair/improvement will allow to gradually solve this issue
3	External sensors do not offer API:s that could be used for integration to the smartphone app	Medium	Medium	Choose sensors that offers API:s. If no API:s is offered an optical reader will be implemented in the smart phone app to transfer data from the sensor to the smartphone

Estimated resources in terms of PM

PARTER	WP2 - Prototyping data provider systems (INNO) - (August 23 - May 26)
	T2.2
	Aug23 - May 26
CTFC	0.5
MICRO	3
OTME	2
SIMTRO	1
UNITBV	4
INNO	2
TREE	33
CNR	2.5
ARBO	**8**
UEF	1
TOTAL	**57**

Health and safety

Not Applicable

Legal issues

Authorizations needed, legal constrains of the technology or the libraries to build the models used.

Reviewed by:

WP Leader:	Jakub Sandak	Date:	31/10/2023

Task 2.3. Forest harvester prototype

Work package title

Prototyping data providing systems

Task title

Forest harvester prototype

Contact person and institution

Bengt Sörvik, Otmetka Holding AB (OTME), bengt.sorvik@otmetka.com

Timeline (in months)

M03-M36

Description

“All prototypes will be developed within M24, but they will be iteratively updated according to the results of the field demos within M36.” This task will develop a fully functional prototype of innovative forest harvester. It will install a timber processor head featuring the roundwood marking system (Task 2.1) and timber quality sensors, enabling the production of data homogeneous with the manual system (T2.1 and T2.2), but automatically collected during the mechanical harvesting and processing tasks. In addition, a laser scanner (LiDAR) will be installed on the harvester. For this purpose, the partners will select the most appropriate LiDAR sensor, inertial navigation system (IMU) and global navigation satellite system (GNSS) receiver to be operated in forest conditions (high vibrations and low satellite coverage). Special attention will be posed to guarantee proper visibility and protection to the integrated sensors adopting the most suitable position on harvested and processor head. The hardware will be integrated with a customized software for real-time data processing, providing bucking suggestions for maximum value recovery and raw data reduction to a lower-sized format. This will include series a of dedicated software modules processing the data generated by the new sensors and the ones commonly available on forest machines (encoders, CANBUS, GNSS). Ready-to-use solutions to transfer data from the harvester machine to the SINTETIC Geodatabase will be developed, including definition of the novel data formats and updated StanForD file structures. Around M16 the first prototype will be released (MS2.1) and a report detailing the characteristics and pre-test results will be delivered in M24 (D2.1) and its respective operative feedback from demos and

upgrades applied in M36 (D2.2). The Prototype of forest harvester with tracking functions and quality sensors will be developed as D2.5 in due date M18.

- **LogTrace 1.0.** To confirm database connection (StanForD). Internal work in combination with OtmetkaID. (M9)
- **LogTrace** 2.0 To set up the first test version in Cloud. Same in all other points as version 1.0. (M12)
- **Harvester** finally contracted. (M6) Expected deliverance +6 month.
- **OtmetkaID** 1.0. First AP that can read OtmetkaID in combination with RFID with an APP in field or at SawMill.
- **SawBox** 2.0 is produced where we also have non sensor technology build into the SawBox. We call this **LogVision HH** (Harvest Head) (M18).

Planned workshops/events

Planned event	Expected audience	Month
LogTrace (ver. 1)	To confirm database connection (StanForD). Internal work in combination with OtmetkaID.	2023-12
LogTrace (ver 2)	Cloud functionality, testing in August.	2024-08
LogVision (reading OtmetkaID)	Meeting Arboreal to establish cooperation in order to read OtmetkaID. Later Microtek.	02-2024
LIDAR scanner mount and connection to OTMETKA's datasystem in harvester.	Will be done together with all partners that are included (CNR?, TREE, INNO and more?). Will be done with first meeting in Izola, October 2023.	10-2024

Relevant deliverables and milestones

Deliverables:

D2.1. Prototypes development Report detailing the technical characteristics and pre-test results of the prototypes (hardware and software) (Document, report → PU): During its final development stage the SINTETIC prototypes will undergo separate pre-tests rounds in real or close-to-real scenarios (e.g. the smartphone APP can be tested on logs in the developers' yard). The report will be a cross-task deliverable, detailing for each prototype the tests accomplished and the corresponding adjustments to the original design of the prototype (if any). Prototypes involved are the optical/electronic system marking and tracing system (T2.1), the Smartphone APP (T2.2), the harvester equipped with LiDAR and sensorized processor head (with marking system and wood quality sensors) (T2.3) and the sawmill sensors (T2.4). (M24) **(INNO)**

D2.2. Report detailing the operative feedback from demos and the upgrades done accordingly on the prototypes (Document, report → PU): The SINTETIC prototypes after deployment will be extensively tested during series of demonstrations. All the experiences as regarding performance, feasibility, reliability, safety of operation, time and cost analysis and quality of generated data will be continuously collected and analysed. These will be discussed periodically by all the involved partners with the objective of identification of the optimal upgrading strategy and overall improvement of the SINTETIC system's performance. The Report will summarize all the individual reports related to the optical/electronic system marking and tracing system (T2.1), the Smartphone APP (T2.2), the harvester equipped with LiDAR and sensorized processor head (with marking system and wood quality sensors) (T2.3) and the sawmill sensors (T2.4) (M36) **(INNO)**

Deliverable D2.6 – Prototype of forest harvester with tracking functions and quality sensors (Demonstrator, pilot, prototype → SEN): Forest harvester featuring a prototype processor head equipped with stamping system with OtmetkaID, RFID reader, RFID applicator and sensors for timber quality assessment. The machine will install also a LiDAR sensor in suitable position for optimal scanning of standing trees and a dedicated computer equipment for data processing. The overall prototype is pre-validated in forest and the results of the test are summarized in a report. (T2.3). Along with the prototype itself, the deliverable will include a report and links to videos of the operating machine. (M18) **(OTME)**

Milestones:

Ms2.3 – Forest harvester prototype: Images or video of the first release of the prototype of D2.5. (SOBJ3). (M16) **(OTME)**

Task timetable

Task 2.3. Forest harvester prototype		2023						2024												2025												2026												2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D2.1. Prototypes development report detailing the technical characteristics and pre-test results of the prototypes (hardware and software)			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■																					
2	D2.2. Report detailing the operative feedback from demos and the upgrades done accordingly on the prototypes			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■																					
3	D2.6. Prototype of forest harvester with tracking functions and quality sensors			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■																											
4	Ms2.3. Forest harvester prototype			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■																															

Roles and responsibilities

Partner	Action
OTME	Role of Partners: INNO is the WP leader and will contribute in designing and implementing of sensors on the hardware components; OTME coordinates two technical tasks related to hardware development of the ID detection systems and intelligent processor head. ARBO coordinates software development and integration of sensors with cell phone. MICRO coordinates development/integration of the sawmill sensors/scanners with the Geodatabase. CNR will support developments of ID readers and quality detection sensors. TREE will develop software tools for forest inventory, mobile phone applications and connections to the Geodatabase. BLUEB will develop software for conglomeration of forest owners. UNITBV will integrate services for illegal logging and quality assessment in the forest. UEF will support integration of the LiDAR sensor with processor. SIMTRO will develop and integrate RFID traceability system. PIVET and FISKAR will integrate and test prototypes at the production lines.

Partner	Action
CTFC	
MiCRO	
SIMTRO	
UNITBV	
INNO	
TREE	
CNR	
UEF	

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
1	Delays in the development of prototypes	Medium	High	An “early warning” system to resolve risks as part of project management plan (D7.1) Demonstrations will start with the first system completed (manual or mechanical) as their use is independent
2	Prototypes do not perform as expected in terms of precision, reliability and/or robustness	Medium	High	The reiterate feedback from each demo, followed by system repair/improvement will allow to gradually solve this issue

Estimated resources in terms of PM

PARTER	WP2 - Prototyping data provider systems (INNO) - (August 23 - May 26)
	T2.3
	Aug23 - May 26
CTFC	0.5
MICRO	3
OTME	**40.5**
SIMTRO	11

UNITBV	1
INNO	15
TREE	10
CNR	2.5
UEF	19
TOTAL	**102.55**

Health and safety

Not Applicable

Legal issues

Authorizations needed, legal constrains of the technology or the libraries to build the models used.

Reviewed by:

WP Leader: Jakub Sandak Date: 31/10/2023

Task 2.4. Sawmill sensors

Work package title

Prototyping data providing systems

Task title

Sawmill sensors

Contact person and institution

Enrico Ursella, MiCROTEC S.R.L. (MiCRO), enrico.ursella@microtec.eu

Timeline (in months)

M03-M36

Description

“All prototypes will be developed within M24, but they will be iteratively updated according to the results of the field demos within M36.”

The existing state-of-the-art sawmill scanning technologies will be integrated with the Geodatabase and associated services of SINTETIC (WP3). The quality-related information will be collected at all stages of the log transformation process, including logs bucking/sorting, sawing optimization, green timber sorting as well as dried timber grading/ trimming. The innovative roundwood identification technologies (Task 2.1) will be integrated with the pilot installations of the partner sawmills. Here will be developed and tested a prototype system for all-boards traceability, combining hardware and software solutions. It will operate through all the production steps of the sawmill, including in the system the following phases:

a) an initial data collection with the necessary arrangements to keep the data orderly and the ground truth of traceability verifiable,

b) search for algorithms providing the required speed and recognition performance,

c) software development and d) implementation of database infrastructure for communication between the various systems.

The image-based tracking system will be integrated with the single-item ID marking to be printed on boards before warehousing (MICRO, PIVET, FISKAR). A direct cross-linking of diverse databases (corresponding to ERP system of the sawmill, raw resources and log/timber properties accessed by on-line scanners) will be developed and associated with the Geodatabase (Task 3.1).

Adaptation of the StanForD standard or definition of the alternative proprietary solution will be assessed (CNR, INNO, MICRO).

Finally, numerical simulation and real validation of the fully integrated quality driven value chain on the yield and/or economic gains of sawmill will be studied.

Around M16 the first prototype will be released (MS2.1) and a report detailing the characteristics and pre-test results will be delivered in M24 (D2.1) and its respective operative feedback from demos and upgrades applied in M36 (D2.2). The Quality assessment and traceability systems in sawmill will be developed as D2.6 in due date M24.

Task 2.4.1 Log ID acquisition at the logyard intake

- Installation and test of cameras and software for reading the code applied on logs with the intelligent processor heads (OTME, PIVET, FISKAR, INNO)
- Installation and test of the logs RFID reader (SIMTRO, PIVET, FISKAR, INNO)
- Communication of the ID of the logs with the common database structure (OTME, SIMTRO, MICRO, CNR)

Task 2.4.2 Product traceability on single steps of the production

- Traceability of logs from logyard to sawmill (MICRO, PIVET, FISKAR)
- Traceability from logs at the sawmill to boards in the greenmill (MICRO, PIVET, FISKAR)
- Traceability of the board stacks from greenmill to kiln and drymill (MICRO, PIVET, FISKAR)
- Traceability from boards at the greenmill to boards at the drymill (MICRO, PIVET, FISKAR)
- Application of barcode to final products and communication of the code (PIVET, MICRO, INNO)

Task 2.4.3 Communication of the traceability

- Communication of the parameters of log and board quality scanners to the database (MICRO, CNR, INNO)
- Test of the traceability and quality data in the database (MICRO, CNR, TREE)

Planned workshops/events

Planned event	Expected audience	Month

Relevant deliverables and milestones

Deliverables:

D2.1. Prototypes development Report detailing the technical characteristics and pre-test results of the prototypes (hardware and software) (Document, report → PU): During its final development stage the SINTETIC prototypes will undergo separate pre-tests rounds in real or close-to-real scenarios (e.g. the smartphone APP can be tested on logs in the developers' yard). The report will be a cross-task deliverable, detailing for each prototype the tests accomplished and the corresponding adjustments to the original design of the prototype (if any). Prototypes involved are the optical/electronic system marking and tracing system (T2.1), the Smartphone APP (T2.2), the harvester equipped with LiDAR and sensorized processor head (with marking system and wood quality sensors) (T2.3) and the sawmill sensors (T2.4). (M24) **(INNO)**

D2.2. Report detailing the operative feedback from demos and the upgrades done accordingly on the prototypes (Document, report → PU): The SINTETIC prototypes after deployment will be extensively tested during series of demonstrations. All the experiences as regarding performance, feasibility, reliability, safety of operation, time and cost analysis and quality of generated data will be continuously collected and analysed. These will be discussed periodically by all the involved partners with the objective of identification of the optimal upgrading strategy and overall improvement of the SINTETIC system's performance. The Report will summarize all the individual reports related to the optical/electronic system marking and tracing system (T2.1), the Smartphone APP (T2.2), the harvester equipped with LiDAR and sensorized processor head (with marking system and wood quality sensors) (T2.3) and the sawmill sensors (T2.4) (M36) **(INNO)**

Deliverable D2.7 – Quality assessment and traceability systems in sawmill (Other → SEN): Scanners for the automatic measurement of the quality of products installed and working at the different stage of production: logyard (CT Log), sawmill (Logeye for logs, Goldeneye 900 for boards), planer mill (Goldeneye 500). The SINTETIC quality parameters of the products are saved in a database structure.

Fingerprint traceability able to link the ID of logs and boards at different stages of production: logs at logyard, logs at sawmill, board at sawmill, boards at drymill. Given a board recognized at the last scanner in the production line a database query allows to extract the IDs and quality parameters of the correspondent intermediate products (log at logyard, at sawmill, green board). (T2.4)

Along with the prototype itself (mostly software), the deliverable will include a report describing the system and detailing the use procedure and preliminary results. (M24) **(MiCRO)**

Milestones:

Ms2.4 – Sawmill prototype operative: Images or video of the first release of the prototype of D2.6. (SOBJ3). (M22) **(MiCRO)**

Task timetable

Task 2.4. Sawmill sensors		2023						2024												2025												2026												2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D2.1. Prototypes development report detailing the technical characteristics and pre-test results of the prototypes (hardware and software)																																															
2	D2.2. Report detailing the operative feedback from demos and the upgrades done accordingly on the prototypes																																															
3	D2.7. Quality assessment and traceability systems in sawmill																																															
4	Ms2.4. Sawmill prototype operative																																															

Roles and responsibilities

Partner	Action
MiCRO	MICRO coordinates development/integration of the sawmill sensors/scanners with the Geodatabase.
CTFC	General coordinator
OTME	OTME coordinates two technical tasks related to hardware development of the ID detection systems and intelligent processor head.
SIMTRO	SIMTRO will develop and integrate RFID traceability system
UNITBV	
INNO	INNO is the WP leader and will contribute in designing and implementing of sensors on the hardware components;
TREE	
PIVET	PIVET will integrate and test prototypes at the production lines.
CNR	CNR will support developments of ID readers and quality detection sensors.
FISKAR	FISKAR will integrate and test prototypes at the production lines

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
2	Prototypes/adaptations do not perform as expected in terms of precision, reliability and/or robustness	Medium	High	The reiterate feedback from each demo, followed by system repair/improvement will allow to gradually solve this issue
3				

Estimated resources in terms of PM

PARTER	WP2 - Prototyping data provider systems (INNO) - (August 23 - May 26)
	T2.4
	Aug23 - May 26
CTFC	0.5
MICRO	**69**
OTME	6.25
SIMTRO	1
UNITBV	1
INNO	15
TREE	1
PIVET	9
CNR	2.5
UEF	1
FISKAR	3
TOTAL	109.25

Health and safety

Not Applicable

Legal issues

Authorizations needed, legal constrains of the technology or the libraries to build the models used.

Reviewed by:

WP Leader: Jakub Sandak Date: 31/10/2023

WP3 – Setting-up the IT infrastructure and development of applications.

WP3 focuses on the establishment of essential IT infrastructure and the development of applications to support the SINTETIC platform. The primary objectives of this work package are to create a scalable, reliable, and open-source platform capable of managing heterogeneous datasets, facilitating decision support, and accommodating mobile applications. Here's a breakdown of the key tasks and activities within WP3:

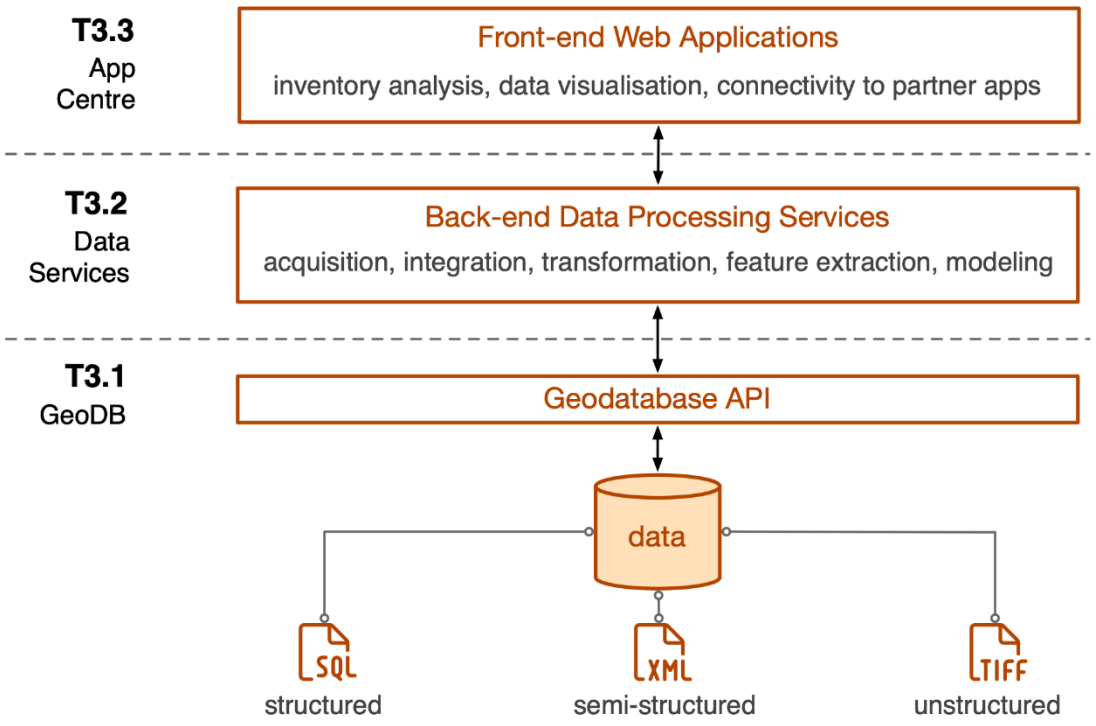
Task 3.1 - SINTETIC Geodatabase Infrastructure: This task is responsible for implementing the Geodatabase infrastructure, encompassing the web service framework supporting communication, storage, and data delivery. The Geodatabase will be designed in alignment with the requirements specified in WP1 and will serve as the foundation for data processing and integration.

Task 3.2 - Data Acquisition and Processing Services: In this task, the project will develop specialized IT services to efficiently handle heterogeneous datasets. These services will address data acquisition, integration, transformation, normalization, and querying.

Task 3.3 - SINTETIC Platform Graphical Interface (GUI): This task will develop the SINTETIC GUI to streamline interaction with the backend services and database established in Task 3.1 and Task 3.2.

The entire platform will be constructed upon the principle of open-source software and applications. This approach fosters collaboration, transparency, and the potential for community contributions to enhance the platform's capabilities.

Upon the completion of WP3, the SINTETIC platform will possess the capability to efficiently manage, process, and leverage diverse datasets, enabling stakeholders to access valuable information and services based on integrated data.



Task 3.1. Implementation of SINTETIC Geodatabase infrastructure

Work package title

Setting-up the IT infrastructure and development of applications

Task title

Implementation of SINTETIC Geodatabase infrastructure

Contact person and institution

Salvatore Minutoli, Consiglio Nazionale delle Ricerche (CNR), salvatore.minutoli@iit.cnr.it

Timeline (in months)

M09-M48

Description

The implementation of SINTETIC Geodatabase infrastructure aim to set up the web service infrastructure supporting multi-platform data acquisition, communication, storage, analysis and delivery for the generation of further services.

Inputs:

The requirements for the SINTETIC's Geodatabase architecture will be initially defined in *WP1- System requirements analysis and interoperability.* During this phase, the project team will work to establish the fundamental requirements and conceptual framework of the Geodatabase system.

The relevant deliverables for this task are:

D1.1 – System Requirements of the overall system and the specific users (data and interfaces)

D1.2 – Data Management Plan (initial-version)

D1.5 – Geospatial and platform data model, conceptual scheme

Activities:

The activities for this task can be summarised as follow:

- **Task 3.1.1: Geodatabase Design and Specifications (CNR,** TREE, CTFC, BLUEB, INNO, UEF, MiCRO, OTME, LAMMA**):** In this task, the detailed design and specifications of the Geodatabase will be developed. The platform will be defined through specifications that will cover all functional and non-functional requirements defined in WP1. The system specification and data model, defined respectively in T1.1 and T1.5, will be the basis for the Geodatabase design.

  The design includes defining the structure, schema, and functionalities required to process, store, analyse, and deliver data across the different producers (e.g., sensors) and consumers (e.g., statistical models) throughout the project. The core infrastructure components will be structured in layers and modules. This will include:

  a. Analysis of computational needs and hardware resource allocation.
  b. Analysis of data flows and design of communication network,

c. Specification of the hardware and software architecture,
d. Architecture design and implementation, which will follow —where applicable— the approach and standards of the Open Geospatial Consortium (OGC), particularly in the context of OGC Web Services.

The output of this task will be included in the documentation of the code delivered in ▪ *D3.1 Geodatabase.*

- **Task 3.1.2: Web Service Infrastructure Development (CNR,** TREE**):** The web service infrastructure supporting multi-platform data acquisition, communication, and storage will be developed in this task. This involves creating the necessary APIs, endpoints, and data communication channels. In this task, the development of open-source software components will take place. These components will play a critical role in the Geodatabase's functionality, allowing for efficient data processing and integration.

The open-source software components as well as data flux web service will be developed to link related sensor devices and other data sources (WP2 and WP4) with data processing units and services (WP5).

The output of this task will be included in the documentation of the code delivered in ▪ *D3.1 Geodatabase.*

- **Task 3.1.3: Testing/Staging environment Geodatabase Implementation (CNR,** TREE, LAMMA**):** The Geodatabase will be physically implemented in this task. This includes setting up the necessary hardware and software components to make the Geodatabase functional and accessible. The testing will consider the data structure and definition described in WP1.

The output of this task will be included in the documentation of the code delivered in ▪ *D3.1 Geodatabase.*

- **Task 3.1.4: Compatibility Testing and Adjustment (CNR,** TREE, CTFC, BLUEB, INNO, UEF, MiCRO, OTME, LAMMA**)** The developed Geodatabase infrastructure will undergo extensive compatibility testing with various data types and sources, especially the spatial information. Performance adjustments will be carried out to enhance efficiency and responsiveness. The testing will consider the data structure and definition described in WP1.

The output of this task will be included in the documentation of the code delivered in ▪ *D3.1 Geodatabase.*

- **Task 3.1.5: Production environment Implementation and Deployment (CNR,** TREE, LAMMA**):** The Geodatabase infrastructure will be deployed and implemented in real-world settings during this task. This includes the installation and configuration of hardware and software components at the designated server location.

The output of this task will be included in the documentation of the code delivered in ▪ *D3.1 Geodatabase.*

- **Task 3.1.6: Documentation (CNR,** TREE, LAMMA**)**: Documentation of the developed database and API for users and administrators will be created to facilitate the smooth operation of the Geodatabase.

The output of this task will be included in the documentation of the code delivered in ▪ *D3.1 Geodatabase.*

Continuous monitoring of the system and implementation of the necessary adjustments/calibrations will be scrutinized periodically based on feedback from WP4 and WP5.

Planned workshops/events

Planned event	Expected audience	Month
Initial workshop	Partners involved in the task	Jan 2024
Design Review	Partners involved in the task	Mar 2024
Implementation Review	Partners involved in the task	September 2024

Planned event	Expected audience	Month
Geodatabase Availability Review	Partners involved in the task	November 2024

Relevant deliverables and milestones

Deliverables:

D3.1. Geodatabase of all data and metadata provided by sensors and forest machinery (Demonstrator, pilot, prototype → SEN):

Physical data infrastructure including data in their native format (unstructured or semi-structured) and structured data. The goal is to create a comprehensive repository that can accommodate a wide range of data types and sources to support the related services. (T3.1)

- **Structured data** refers to data that has a predefined and well-defined schema. Structured data is typically stored in a tabular format and is easy to query using structured query languages like SQL. Examples of structured data include geospatial data, defined key field needed for the system to work and specific fields defined by standard information (e.g., well-defined standards).
- **Semi-structured data** refers to partially structured data that contains metadata or markers to describe the semantic relationships of the records or fields within, i.e., it is self-describing. For instance, XML and JSON data are semi-structured. In this regard, so-called "NoSQL" database systems are used for the storage and retrieval of these data, or in a combination with structured models in so-called "Not Only SQL" systems.
- **Unstructured data**, on the other hand, lacks a specific schema and does not fit neatly into tables with rows and columns. It can include various types of data, such as simple text documents, images, audio files, videos, etc. Unstructured data does not follow a fixed structure, making it more challenging to organize, filter and analyse compared to structured data. Examples of unstructured data would include documents like tutorials, images of the product, etc. It is not envisioned that the system will analyse the content of these files.

The data infrastructure will be built on top of open-source software components as well as data flux web service will be developed to link related sensor devices and other data sources (WP2 and WP4) with data processing units and services (WP5). The deliverable will be available for review through access to the platform, whose content will be gradually populated by the tests (WP2) and demos (WP4). (M18) **(CNR)**

Milestones:

Ms3.1 – Geodatabase Online Availability: The production environment of the Geodatabase is up and running, being available to the rest of the consortium; related to D3.1. (SOBJ1). (M16) **(CNR)**

Ms3.2 – Geodatabase Evaluation Completion: The Geodatabase has been validated by the consortium and an initial optimization has been completed based on real-world usage. (Instances, relationships, constraints). (SOBJ1). (M21) **(CNR)**

Task timetable

Task 3.1. Implementation of SINTETIC Geodatabase infrastructure		2023							2024												2025												2026												2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D3.1. Geodatabase of all data and metadata provided by sensors and forest machinery																																																
2	Ms3.1. Geodatabase Online Availability																																																
3	Ms3.2. Geodatabase Evaluation Completion																																																

Roles and responsibilities

Partner	Action
CNR (15)	CNR will take part in user-specific requirements analysis and geodatabase design. CNR will contribute to the geodatabase development, integration, testing and deployment. CNR will oversee the development of this task ensuring the integration of data and applications with the systems architecture. **Involved in tasks: T3.1.1, T3.1.2, T3.1.3, T3.1.4, T3.1.5, T3.1.6**
TREE (7)	WP leader, coordinating all tasks, TREE will take part in user-specific requirements analysis and geodatabase design. TREE will contribute to the geodatabase development, integration, testing and deployment. **Involved in tasks: T3.1.1, T3.1.2, T3.1.3, T3.1.4, T3.1.5, T3.1.6**
CTFC (5)	General coordinator
INNO (4)	They will provide their needs and requirements, review the design and test the final product with their data and workflows. **Involved in tasks: T3.1.1, T3.1.4**
UEF (3.5)	They will provide their needs and requirements, review the design and test the final product with their data and workflows. **Involved in tasks: T3.1.1, T3.1.4**
BLUEB (3)	They will provide their needs and requirements, review the design and test the final product with their data and workflows. **Involved in tasks: T3.1.1, T3.1.4**
MiCRO (2)	They will provide their needs and requirements, review the design and test the final product with their data and workflows. **Involved in tasks: T3.1.1, T3.1.4**
OTME (2)	They will provide their needs and requirements, review the design and test the final product with their data and workflows. **Involved in tasks: T3.1.1, T3.1.4**
LAMMA (1)	Contribute to the Geodatabase design and testing. **Involved in tasks: T3.1.1, T3.1.3, T3.1.4, T3.1.5, T3.1.6**

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
1	Delays in the development of prototypes	Medium	High	A detailed schedule and monthly periodic report should be in place to assess the progress of the tasks. In case of delay, mitigation actions should include the allocation of more resources to the task.

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
2	Prototypes/adaptations do not perform as expected in terms of precision, reliability and/or robustness	Medium	High	The reiterate feedback from the testing phases and later from each demo (WP7), followed by system repair/improvement will allow to gradually solve this issue
3	Data not adequate to build the planned models	Low	High	The sequence of Demos will allow to intensify the data collection and adjust the test plan in the latest field activities in order to collect the required data for modelling
4	A partner leaves the project or underperforms technically or financially	Low	High	Two options will be considered: a) substitution of the partner with a similar profile b) reallocation of resources and tasks among the partners to assume the leaving partner's responsibilities
5	Data size to store in the GeoDatabase is much greater than expected	Medium	Medium	The modularity of the physical set-up will allow the storage size to be increased, if necessary, as well as the used network bandwidth.
6	Difficulty to agree on a consistent data structure from the results of WP1	Low	Medium	Personnel responsible of T3.1 will also be involved T1.3, to be able to continue the work on the Geodatabase implementation with which is already agreed, while the last details on structure for data formats and services interfaces are ironed out.

Estimated resources in terms of PM

PARTER	WP3 - Setting-up the IT infrastructure and development of applications (TREE) - (February 24 - May 27) -
	T3.1
	Feb24 - Nov24-May27
CTFC	5
MICRO	2
BLUEB	3
OTME	2

INNO	4	
TREE	7	
CNR	**15**	
LAMMA	9	
UEF	3.5	
TOTAL	**50.5**	

Health and safety

Not Applicable

Legal issues

Given the amount and kind of data that will be contained in the Geodatabase, it is important that the data and processes therein are compliant with the applicable national and European laws and norms (e.g., copyright, license, sensitivity), particularly for ingress data. In this regard, the CNR will comply with all the necessary safeguards concerning the storage and access of the data. In addition, each consortium member will be responsible for the data that they enter to/read from the Geodatabase, in accordance with the project's Data Management Plan. Regarding the technology used on the Geodatabase, particularly the software components, the use of well-established open-source solutions will be paramount to the long-term success of the project. By using such solutions, vendor lock-in is avoided in case of bankruptcy or service termination by the software supplier. This is particularly relevant in view of the importance of the Geodatabase within the project and CNR's commitment to host the Geodatabase for at least five years after the end of the project. Moreover, this approach is in line with the Open-Source Strategy of the European Commission.

Reviewed by:

WP Leader: Alejandro Poveda Date: 9/10/2023

Task 3.2. Data acquisition and processing services

Work package title

Setting-up the IT infrastructure and development of applications

Task title

Data acquisition and processing services

Contact person and institution

Gianni Picchi, Consiglio Nazionale delle Ricerche (CNR), gianni.picchi@cnr.it

Timeline (in months)

M09-M24

Description

The implementation of SINTETIC services will include the acquisition and handling of data sets. The platform will provide a scalable and reliable backend for geospatial and non-spatial data management and processing.

The services will be stand alone and accessible via API. The result of the services will be made available in the SINTEIC Geodatabase

The specific services include:

a. **Sentinel Data Acquisition:** Sentinel2 data acquisition service based on GEE (Google Earth Engine) platform; time series images and Vegetation Indices (NDVI, SAVI, NBR, etc.) outputs. GEE is one of the most used cloud platform-based frameworks, and it allows simplified query, acquisition, composition, processing, extraction and saving of spatial features. GEE provides a JavaScript API and a Python API for data management and analysis. This activity involves the development of a set of algorithms in the Conda environment, using the Python programming language, which, relying on the GEE API, allows the derivation of time series of images and values of vegetation indices from 2022 to 2024 of the sites involved in the experimentation. The structured data output thus acquired will be transferred to the geodatabase as geocoded images and csv files and will be accessible to users through the dashboard.

b. **Climate Data Acquisition and Handling: I**n order to assess how abiotic elements have affected tree development and growth and to evaluate how current climate changes impact trunk development, a climatological characterization will be implemented for each site under experimentation. It will be carried out using climatic datasets from reanalysis produced by the European Centre for Medium-Range Weather Forecasts (ECMWF) and made available through the Copernicus Climate Change Service (C3S). The ERA5 Land dataset will be used for the climatological characterization, which provides a total of 53 atmospheric variables on a global scale, at a spatial resolution of 0.1°, with hourly temporal frequency, and covering the period from 1950 to the present. Specifically, the following variables will be used for the climatology of the last 40 years, since 1981 to 2020: Temperature, Precipitation, components v and n of wind, and solar radiation. For each variable, the time series relevant to the area containing the evaluation sites will be derived. This will allow the reconstruction climatologic diagrams (i.e., Walter-Lieth), and other climatic indices as Standard Precipitation Index (SPI) or Bagnouls-Gaussen Index). Datasets thus acquired and derived will be transferred to the geodatabase as geocoded images (adopting a GeoTif format for satellite scenes, in the coordinate system adopted by the Project); in *.csv and/or pickle format for alphanumeric time series; and *jpg format for derived diagrams and infographics.

c. **Illegal logging:** The procedure for identifying areas with illegal forest cuts involves using images acquired through the GEE platform (see point a) to derive NDVI and NBR images. Then, for each individual pixel constituting the image, these images will be used to extract, for a time series of IVs and using specially developed machine learning algorithms, and harmonic-type curve so as to obtain a continuous and clean trend of the vegetation index. The amplitude and magnitude components of each curve will then be subsequently used to extract those pixels that exhibit an "anomalous" trend. These pixels will be used to derive areas, in vectorial format, that will be compared with the are for which the cut was authorized. The implemented recognition algorithm will run every 15 days since the temporal resolution of Sentinel2 satellites is about 6-10 days (depending on latitude) and the success of the recognition process depends mainly on the cloud cover of the acquired satellite scenes. The areas that do not match will be considered as areas to be investigated as illegal logging.

The outcome of this analysis will be two different products: the first is a geographic layer in vector format (standard shapefile and GeoPackage format) that represents the areas on which attention needs to be focused as they are classified as "potential illegal logging areas"; while the second product will be a summary report in which some summary characteristics of the area (extent, centroid location,

etc.) and a summary map identifying geographic locations at two different scales of detail (1:5,000 and 1:25,000) will be shown. These data will also feed into the geodatabase; both for the spatial component (shapefile or GeoPackage format) and the report (pdf document)

The outcome of this analysis will be two different products: the first is a geographic layer in vector format (standard shapefile and GeoPackage format) that represents the areas on which attention needs to be focused as they are classified as "potential illegal logging areas"; while the second product will be a summary report in which some summary characteristics of the area (extent, centroid location, etc.) and a summary map identifying geographic locations at two different scales of detail (1:5,000 and 1:25,000) will be shown. These data will also feed into the geodatabase; both for the spatial component (shapefile or GeoPackage format) and the report (pdf document).

d. **Management and Upload of Remote Sensing and In-Situ Data:** Dedicated services will handle the processing and uploading of in-situ data generated by multisource platforms developed and tested in WP2 and WP4.
e. **Features extraction:** This service will be specifically designed for extracting relevant features and information from the input datasets.
    i. Define features and datasets.
f. **User data access service:** Implement the data access rules defined in the data management plan, data access policy (task 1.2).
    i. Simplify the work of other partners to access in the DB
    ii. Authorise and authenticate users. Data access rights.
    iii. Set data upload/download limitations rules, if needed

The services developed will be based on the principle of open-source software and applications. The platform will be fully compatible with commonly available data from remote sensing spaceborne sensors (such as Sentinel 1&2 and Copernicus system) and other non-spatial datasets.

Inputs:

The requirements for the SINTETIC's processing services functionalities, architecture and data will be gathered from the *WP1- System requirements analysis and interoperability* and *WP2 – Prototyping data providing systems.*

Activities:

- **Task 3.2.1: Requirements for the Processing services (CNR,** TREE, LAMMA, CTFC, BLUEB, UEF, MiCRO, OTME, UNITBV, INNO**):** In this task a review of the need and requirements for data, data workflow and processing needs will be performed. The proposed services in this proposal will be further defined and justified.

  The output of this task will be included in the documentation of the code delivered in *D3.2 Data procedures and algorithms to services, source code*.

- **Task 3.2.2: Processing services Design and Specifications (CNR,** TREE, LAMMA, CTFC, BLUEB, UEF, MiCRO, OTME, UNITBV**):** In this task, the detailed design and specifications of the processing services will be developed. The platform will be defined through specifications that will cover all functional and non-functional requirements defined in Task 1. The processing services specifications and data model should be defined. This will include:
    a. Functional description of the services.
    b. The system architecture design and implementation
    c. Specification of the hardware and software architecture,
    d. Definition of data and data flows
    e. Analysis of computational needs and hardware resource allocation.

  The output of this task will be included in the documentation of the code delivered in *D3.2 Data procedures and algorithms to services, source code*.

- **Task 3.2.3: Services development (CNR,** TREE, LAMMA)**:** In this task, the defined IT services will be developed to handle data integration and transformation. The services will be designed to efficiently work with data from various sources.

The output of this task will be included in the code delivered in *D3.2 Data procedures and algorithms to services, source code*.

- **Task 3.2.4: Testing/Staging environment Implementation (CNR,** TREE, LAMMA)**:** The services will be physically implemented in a Testing/Staging environment within this task. This includes setting up the necessary hardware and software components to make the Geodatabase functional and accessible.

  The output of this task will be included in the code delivered in *D3.2 Data procedures and algorithms to services, source code*.

- **Task 3.2.5: Testing (CNR,** TREE, LAMMA, CTFC, BLUEB, UEF, MiCRO, OTME, UNITBV**):** The developed services and services infrastructure will undergo extensive testing with various data types and sources, especially the spatial information. Performance optimization will be carried out to enhance efficiency and responsiveness.

  The output of this task will be included in the code delivered in *D3.2 Data procedures and algorithms to services, source code*.

- **Task 3.2.6: Production environment Implementation and Deployment (CNR,** TREE, LAMMA**):** After testing the services infrastructure will be deployed and implemented in real-world settings during this task. This includes the installation and configuration of hardware and software components at the designated server location.

  The output of this task will be included in the documentation of the code delivered in *D3.2 Data procedures and algorithms to services, source code*.

The SINTETIC services built in this work package will be available for review through access to the platform, whose content will be gradually released and used in the demos (WP4).

Planned workshops/events

Planned event	Expected audience	Month
Initial workshop	Partners involved in the task	Jan 2024
Design Review	Partners involved in the task	Mar 2024
Testing Implementation Review	Partners involved in the task	February 2025
Final Implementation Review	Partners involved in the task	May 2025

Relevant deliverables and milestones

Deliverables:

D3.2. Data procedures and algorithms to services, source code (OTHER → PU):

Set of procedures and algorithms to be associated with the SINTETIC platform in order to make available and process on its different datasets coming from different sources. A set of procedures and applied algorithms will run as specific modules to be used to filter useful results from remote sensing or web services datasets to be integrated within the SINTETIC Geo-DB.2:3. (T3.2). (M24) **(CNR)**

Milestones:

Ms3.3 – Open-source platform operative: Accessible to reviewers with credentials provided upon request. (SOBJ2). (M21) **(LAMMA)**

Task timetable

Task 3.2. Data acquisition and processing services		2023						2024												2025												2026												2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D3.2. Data procedures and algorithms to services, source code																																															
2	Ms3.3. Open-source platform operative																																															

Roles and responsibilities

Partner	Action
CNR (10)	CNR will take part in user-specific requirements analysis and web services design. CNR will contribute to web applications development, integration, testing and deployment. CNR will contribute to georeferenced information production and implement the services in own farm server. CNR will oversee the development ensuring the interoperability of data and applications with the systems architecture. **Involved in tasks: T3.2.1, T3.2.2, T3.2.3, T3.2.4, T3.2.5, T3.2.6**
TREE (7)	WP leader, coordinating all tasks, TREE will take part in user-specific requirements analysis and web application GUI design. TREE will contribute to web services development, integration and testing. **Involved in tasks: T3.2.1, T3.2.2, T3.2.3, T3.2.4, T3.2.5, T3.2.6**
LAMMA (9)	LAMMA will take part in user-specific requirements analysis and web services design. LAMMA will take part in user-specific requirements analysis and web services design. **Involved in tasks: T3.2.1, T3.2.2, T3.2.3, T3.2.4, T3.2.5, T3.2.6**
CTFC (5)	General coordinator
BLUEB (4)	They will provide their needs and requirements, review the design and test the final product with their data and workflows. **Involved in tasks: T3.2.1, T3.2.2, T3.2.5**
UEF (3.5)	They will provide their needs and requirements, review the design and test the final product with their data and workflows. **Involved in tasks: T3.2.1, T3.2.2, T3.2.5**
UNITBV (2)	They will provide their needs and requirements, review the design and test the final product with their data and workflows. **Involved in tasks: T3.2.1, T3.2.2, T3.2.5**
MiCRO (2)	They will provide their needs and requirements, review the design and test the final product with their data and workflows. **Involved in tasks: T3.2.1, T3.2.2, T3.2.5**
OTME (2)	They will provide their needs and requirements, review the design and test the final product with their data and workflows. **Involved in tasks: T3.2.1, T3.2.2, T3.2.5**

Partner	Action
INNO (0.5)	They will provide their needs and requirements. **Involved in tasks: T3.2.1, T3.2.2, T3.2.5**

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
1	Delays in the development of prototypes	Medium	High	A detailed schedule and monthly periodic report should be in place to assess the progress of the tasks. In case of delay, mitigation actions should include the allocation of more resources to the task.
2	Prototypes/adaptations do not perform as expected in terms of precision, reliability and/or robustness	Medium	High	The reiterate feedback from the testing phases and later from each demo (WP7), followed by system repair/improvement will allow to gradually solve this issue
3	Data not adequate to build the planned models	Low	High	The sequence of Demos will allow to intensify the data collection and adjust the test plan in the latest field activities in order to collect the required data for modelling
4	A partner leaves the project or underperforms technically or financially	Low	High	Two options will be considered: a) substitution of the partner with a similar profile b) reallocation of resources and tasks among the partners to assume the leaving partner's responsibilities

Estimated resources in terms of PM

PARTER	**WP3 - Setting-up the IT infrastructure and development of applications (TREE) - (February 24 - May 26) -**
	T3.2
	Feb24 - May25
CTFC	5

MICRO	2
BLUEB	4
OTME	2
UNITBV	2
INNO	0.5
TREE	7
CNR	**10**
LAMMA	7
UEF	3.5
TOTAL	**43**

Health and safety

Not Applicable

Legal issues

Given the amount and kind of data that will be contained in the Geodatabase, it is important that the data and processes therein are compliant with the applicable national and European laws and norms (e.g., copyright, license, sensitivity), particularly for ingress data. In this regard, the CNR will comply with all the necessary safeguards concerning the storage and access of the data. In addition, each consortium member will be responsible for the data that they enter/read to/from the Geodatabase, in accordance with the project's Data Management Plan. Regarding the technology used on the Geodatabase, particularly the software components, the use of well stablished open-source solutions will be paramount to the long-term success of the project. By using such solutions, vendor lock-in is avoided in case of bankruptcy or service termination by the software supplier. This is particularly relevant in view of the importance of the Geodatabase within the project and CNR's commitment to host the Geodatabase for at least five years after the end of the project. Moreover, this approach is in line with the Open-Source Strategy of the European Commission.

Reviewed by:

WP Leader: Alejandro Poveda Date: 09/10/2023

Task 3.3. SINTETIC Platform Graphical Interface (GUI).

Work package title

Setting-up the IT infrastructure and development of applications

Task title

SINTETIC Platform Graphical Interface (GUI).

Contact person and institution

Alejandro Poveda, TREEMETRICS LIMITED (TREE), jpoveda@treemetrics.com

Timeline (in months)

M18-M36

Description

a. This task will develop the SINTETIC Graphic User Interface (GUI) to facilitate the interaction with the backend services and database developed in Task 3.1 and Task 3.2.

This GUI will likely include features such as forms, buttons, and menus for users to input data, retrieve information, and visualize results, including:

- **WebGIS:** The application will include map and cartographic visualization capabilities. Users will be able to view and interact with geographical data in the form of maps, which could include layers, markers, and overlays. The application will enable the transfer of geographic information. This could involve importing and exporting geographical data.
- **User Interface to Services:** In addition to map visualization, the application will provide the user interfacing with the SINTETIC services. This could include features like interactive dashboards, data filtering, reports and customization options to enhance the user experience.

The information and reports consent will be defined in WP1, these may include data such as project boundaries, background image, Marking, inventory and log simulation (WP2.2), harvesting data (quantity, quality, productivity, assortments, etc) and sawmill data (quantity, quality, etc). Comparison between the different data sources may also be shown (e.g., Inventory vs. Harvester vs. Sawmill)

This web application will also include the SINTETIC Applications centre where the different solutions developed by the partners will be listed and described. The SINTETIC Forest App Centre will share key data such as tool description, installations guides and tutorials. The solutions developed by the partners include:

- Forest-sharing platform (BLUEB),
- field data applications (ARBO and TREE),
- ForestHQ-Inventory (TREE),
- ForestQR for forest harvester (OTME),
- ForestHQ-Harvest Monitoring (TREE),
- SMART-Link for sawmills (MICRO).

Inputs:

The SINTETIC web application processing services functionalities, architecture and data will be gathered from the *WP1- System requirements analysis and interoperability* and *WP2 – Prototyping data providing systems.*

Activities:

- **Task 3.3.1: The SINTETIC web application Design (TREE,** CNR, LAMMA, CTFC, BLUEB, UEF, MiCRO, OTME, ARBO, INNO)
  - Collaborate with partners to gather requirements for the SINTETIC web application's functionalities and features.
  - Design the user interface with a focus on multisource data integration and visualization capabilities.
  - Create wireframes and prototypes for the application's layout and user interactions.
- **Task 3.3.2: The SINTETIC web application Development (TREE,** CNR, LAMMA)

- Develop the SINTETIC web application's front-end using responsive design principles to ensure compatibility across devices.
- Implement map-cartographic visualization components and user interface services for a rich user experience.
- Implement APIs and data connections to access field data and mapping information from D3.1 Geodatabase, D3.2 SINTETIC web services and other sources.

- **Task 3.3.3: Inventory Web Application Testing and Implementation (TREE,** CNR, LAMMA, CTFC, BLUEB, UEF, MiCRO, OTME, INNO)
  - Conduct rigorous testing of the SINTETIC web application's functionalities, ensuring data integration and visualization accuracy.
  - Verify that map-cartographic visualizations and user interface services are responsive and user-friendly.
  - Address any identified issues through iterative testing and optimization.
  - Deploy the SINTETIC web application to a secure server, providing continuous access to inventory data and multisource data integration.

The SINTETIC applications built in this work package will be available for review through access to the platform, whose content will be gradually released and used in the demos (WP4).

Planned workshops/events

Planned event	Expected audience	Month
Initial workshop	Partners involved in the task	Oct 2024
Design Review	Partners involved in the task	Feb 2025
Testing Implementation Review	Partners involved in the task	Jan 2026
Final Implementation Review	Partners involved in the task	May 2026

Relevant deliverables and milestones

D3.3. The SINTETIC platform GUI (Other → PU): The SINTETIC platform will allow users in the forestry industry to browse various data and tools developed or made available to the SINTETIC activity. This GUI will be designed to help with their operations and workflow including managing and tracking inventory data, analysing data, harvesting monitoring, etc.

The SINTETIC platform GUI will be accessible via a web browser and users will be able to search for specific data and reports. It would also provide detailed information about the features and functionality of each app, along with screenshots and video demonstrations. (T3.3) (M36) **(TREE)**

Milestones:

Ms3.4 – SINTETIC platform GUI (alpha release): The prototype of the SINTETIC platform is up and running in the alpha environment, being available to the rest of the consortium; related to D3.3. M30) (**TREE**)

Ms3.5 – SINTETIC platform GUI (beta release): The prototype of the SINTETIC platform is up and running in the beta environment, being available to the rest of the consortium; related to D3.3. M36) (**TREE**)

Task timetable

Task 3.3. SINTETIC Forest App Centre: Applications and Services		2023						2024										2025												2026												2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D3.3. The SINTETIC platform GUI																																															
2	Ms3.4 – SINTETIC platform GUI (alpha release)																																															
3	Ms3.5 – SINTETIC platform GUI (beta release)																																															

Roles and responsibilities

Partner	Action
TREE (39)	WP leader, coordinating all tasks, TREE will take part in user-specific requirements analysis and web application GUI design. TREE will contribute to web applications development, integration, testing and deployment. TREE will oversee the development of this task ensuring the integration of data and applications with the systems architecture. **Involved in tasks: T3.3.1, T3.3.2, T3.3.3, T3.3.4, T3.3.5, T3.3.6**
LAMMA (9)	LAMMA will take part in user-specific requirements analysis and web application GUI design. LAMMA will contribute to web applications development, testing and integration. **Involved in tasks: T3.2.1, T3.2.2, T3.2.3, T3.2.4, T3.2.5, T3.2.6**
CNR (5)	CNR will take part in user-specific requirements analysis and web application GUI design. CNR will contribute to server and integrate georeferenced information production. **Involved in tasks: T3.2.1, T3.2.2, T3.2.3, T3.2.4, T3.2.5, T3.2.6**
CTFC (5)	General coordinator
BLUEB (5)	They will provide their needs and requirements, review the design and test the final product with their data and workflows. **Involved in tasks: T3.2.1, T3.2.3, T3.2.4, T3.2.6**
MiCRO (3)	They will provide their needs and requirements, review the design and test the final product with their data and workflows. **Involved in tasks: T3.2.1, T3.2.3, T3.2.4, T3.2.6**
OTME (2)	They will provide their needs and requirements, review the design and test the final product with their data and workflows. **Involved in tasks: T3.2.1, T3.2.3, T3.2.4, T3.2.6**
ARBO (1)	ARBO will participate in the specifications for the integration of the inventory web application with the mobile applications developed in T2.2 **Involved in tasks: T3.2.1, T3.2.2, T3.2.3**
UEF (1)	They will provide their needs and requirements, review the design and test the final product with their data and workflows. **Involved in tasks: T3.2.4, T3.2.6**

Partner	Action
INNO (0.5)	They will provide their needs and requirements, review the design and test the final product with their data and workflows. **Involved in tasks: T3.2.4, T3.2.6**

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
1	Delays in the development of prototypes	Medium	High	A detailed schedule and monthly periodic report should be in place to assess the progress of the tasks. In case of delay, mitigation actions should include the allocation of more resources to the task.
2	Prototypes/adaptations do not perform as expected in terms of precision, reliability and/or robustness	Medium	High	The reiterate feedback from the testing phases and later from each demo (WP7), followed by system repair/improvement will allow to gradually solve this issue
3	Data not adequate to build the planned models	Low	High	The sequence of Demos will allow to intensify the data collection and adjust the test plan in the latest field activities in order to collect the required data for modelling
4	A partner leaves the project or underperforms technically or financially	Low	High	Two options will be considered: a) substitution of the partner with a similar profile b) reallocation of resources and tasks among the partners to assume the leaving partner's responsibilities

Estimated resources in terms of PM

PARTER	**WP3 - Setting-up the IT infrastructure and development of applications (TREE) - (February 24 - May 26) -**
	T3.3
	Nov24 - May26
CTFC	5

MICRO	3
BLUEB	5
OTME	2
INNO	0.5
TREE	**40**
CNR	5
ARBO	1
LAMMA	3
UEF	1
TOTAL	**65.5**

Health and safety

Not Applicable

Legal issues

Authorizations needed, legal constrains of the technology or the libraries to build the models used.

Reviewed by:

WP Leader: Alejandro Poveda Date: 31/10/2023

WP4 – Demonstrations.

…

Task 4.1. Demo planning

Work package title

Demonstrations

Task title

Demo planning

Contact person and institution

Carla Nati, Consiglio Nazionale delle Ricerche (CNR), carla.nati@cnr.it

Timeline (in months)

M18-M26

Description

This task will define a Demonstration Plan (DemoPlan) setting the operative conditions for a successful accomplishment of the planned demos in the countries and the value chains involved. In each demo site the local partners will be responsible of practical organization (e.g., harvest permissions, timber hauling, etc.) as well as of installation of the necessary infrastructure. The main DemoPlan will be a living document, updated after each demo, and will include two annexes:

1) A detailed Test plan to accurately collect and elaborate data for an economic and environmental analysis of the system, as well as ground truthing measurements (e.g. with traditional tools on logs) to verify the precision of quality and quantity estimates (Task 5.4). The test plan will also secure the data needed for modelling in Task 5.1 and Task 5.2 (e.g. selection of harvest sites to compare different silviculture treatments).

2) A Host plan to organize the public part of the demos, held in the forest and/or at the industrial facility and involving local professionals, stakeholders and general public (supporting WP6). Drafted by the national partners responsible for each demo, the plan will detail the advertisement and communication strategy, as well as the logistics of the event

Planned workshops/events

Planned event	Expected audience	Month

Relevant deliverables and milestones

Deliverables:

D4.1. Demonstration plan of all the planned demos (Document, report → PU): Demonstration plan (first release) reporting timing, exact location, sequence of demos, specific activity planned and the data collection methodology.

It will differentiate the demos 1 and 2 from the remaining (3 to 10) as the former demos will involve mainly online digital platforms applied at national level and the latter demos will focus on specific practical application of the prototypes and technologies developed by the project, deployed in real operative scenario (from forest to sawmill).

The Demonstration plan will be updated after each demo, and will include two annexes:

1) A test plan to accurately collect and elaborate data for an economic and environmental analysis of the system as well as ground truthing measurements (e.g. with traditional tools on logs) to verify the precision of quality and

quantity estimates (Task 5.4). The test plan will also secure the data needed for modelling in Task 5.1 and Task 5.2 (e.g. selection of harvest sites to compare different silviculture treatments).

2) A host plan to organize the public part of the demos, held in the forest and/or at the industrial facility and involving local professionals, stakeholders and general public (supporting WP6). Drafted by the national partners responsible for each demo, the plan will detail the advertisement and communication strategy as well as the logistics of the event. (T4.1). (M26) **(CNR)**

Milestones:

Task timetable

Task 4.1. Demo planning		2023						2024												2025												2026												2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D4.1. Demonstration plan of all the planned demos																																															

Roles and responsibilities

Partner	Action
CNR	Task leader. Scientific supervision for Demo 1. D4.1
CTFC	Scientific supervision for Demo 7
MiCRO	MICRO will support for the implementation of SINTETIC Geodatabase, data acquisition and processing services
BLUEB	As partner in charge for Demo 1 and 2, BLUEB will contact and involve forest owners potentially interested in join the SINTETIC Platform
OTME	OTME will apply and decode Optical marking systems on trees and logs
SIMTRO	SIMTRO will deploy RFID systems on trees and logs
UNITBV	As host of Demos 4 and 9, UNIBTV will take care of organising them from a regulatory and logistics point of view
INNO	INNO will apply and decode Optical marking systems on trees and logs
FMMF	As host of Demo 10, FMMF will take care of organising it from a regulatory and logistics point of view
TREE	TREE will develop and apply a Smartphone_app for timber measuring, grading and tracking
PIVET	As host of Demo 6, PIVET will take care of organising it from a regulatory and logistics point of view
ARBO	ARBO will integrate, adapt and improve the Smartphone application “Arboreal forest”
BOSCAT	As host of Demo 7 in Cataluña region, BOSCAT will take care of organising it from a regulatory and logistics point of view
LAMMA	
UEF	As host of Demos 3 and 8, UEF will take care of organising them from a regulatory and logistics point of view. Moreover, it will cooperate with the other Scientific Partners for data collection to analyze them effectively

Partner	Action
FISKAR	As host of Demo 5, FISKAR will take care of organising it from a regulatory and logistics point of view
SILVA	As partner involved in Demos 4 and 9, SILVA will support UNITBV from a technical point of view
ASEMFO	As host of Demo 7 in Spain, ASEMFO will take care of organising it from a regulatory and logistics point of view
KONE	As partner involved in Demos 3 and 8, KONE will take care of selecting trial areas and support the activities
ASFOR	As a partner involved in Demos 4 and 9, ASFOR will take care of selecting trial areas and support the activities

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
1	Delays in the development of prototypes	Medium	High	An "early warning" system to resolve risks as part of project management plan (D7.1) Demonstrations will start with the first system completed (manual or mechanical) as their use is independent
2	Prototypes/adaptations do not perform as expected in terms of precision, reliability and/or robustness	Medium	High	The reiterate feedback from each demo, followed by system repair/improvement will allow to gradually solve this issue

Estimated resources in terms of PM

PARTER	WP4 - Demonstrations (CNR) - (November 24 - February 27)
	T4.1
	Nov24 - Jul25
CTFC	9.5
MICRO	12
BLUEB	1
OTME	18.5
SIMTRO	4

UNITBV	20
INNO	4
FMMF	4
TREE	1
PIVET	5
CNR	**28**
ARBO	0.75
BOSCAT	2
LAMMA	0.5
UEF	6
FISKAR	3
SILVA	6
ASEMFO	2
KONE	0.5
ASFOR	1.5
TOTAL	129.25

Health and safety

Not Applicable

Legal issues

Authorizations or permits needed, legal constrains regarding the risk of fire/nesting species on the area, legal constraints of the technology or the libraries to build the models used, National/Bank holydays, etc.

Planned Demo Sites:

Demonstrator	Location	Partner	Description	Scale/Capacity	Type and volume of input materials/ products	Type and volume of output materials/ products
1 Aggregation of fragmented forests and involvement of citizen and stakeholders	Italy (whole country, if applicable, the specific area will be defined in T4.1)	BLUEB	The demo will show the synergy between the Forest Sharing platform, designed to aggregate and manage fragmented forests, and the SINTETIC platform and its digital tools. It will also feature the practical application of some additional features such as a citizen science example (to monitor fuel load in forest). BLUEB will integrate the SINTETIC and Forest-Sharing platforms, demonstrating the increased potential for the valorisation of fragmented forest. BLUEB will also use the digital data and tracking system to certificate the local-timber brand of FMMF. CNR will provide scientific supervision.	The demonstration will have a national scale as forest owners from all over the country will be welcome to join. Yet, specific actions such as the establishment of a local certified timber product will have a specific location (FMMF's territory) replicable in other forested areas.	Not applicable	600 ha of forest aggregated (in addition to what already included in the Forest Sharing).
2 Aggregation of fragmented forests in a new country	Spain (whole country)	BLUEB	Based on the experience of the former demo, this activity will demonstrate in a new country/setting the combined potential of the Forest Sharing platform, designed to aggregate and manage fragmented forests, and the SINTETIC platform and its digital tools.	The demonstration will have a national scale as forest owners from all over the country will be welcome to join.	Not applicable	600 ha of forest aggregated
3 Demonstration of the prototype harvester,	Finland, (specific area	UEF, KONE	This will be the first demo to deploy in the operational environment the prototype system designed for the high level of	The demonstration will have a local scale, involving directly several plots of forests to test	500 trees mechanically	About 1,500 logs (roughly 375 m3 of roundwood) marked,

Demonstrator	Location	Partner	Description	Scale/Capacity	Type and volume of input materials/ products	Type and volume of output materials/ products
and the geodatabase platform. Focus on training the onboard LiDAR sensor (DEMO with high level of mechanization)	to be defined in T4.1)		mechanization (Geodatabase platform D3.1 and prototype harvester D2.5). Thus, even if the work planned in WP2 includes validation of the harvester, this demo is regarded as intermediate between system development and public demonstration. UEF will lead this action due to the experimental content still needed at this stage. this stage. Possibly, another "high level" demo will be organized by UEF, contacting local forest entrepreneurs for testing the LIDAR on another harvester brand.	the sensors and tools installed on the prototype. The results will have a full replicability in all the following demonstrations and beyond the scale of the project, being applicable in any type of forest and value chain. Specific focus of the DEMO: LiDAR training and ground truthing (T2.3, T5.1 and 5.2)	felled and processed	traced and assessed in quality.
4 Demonstration of the harvester prototype and the geodatabase platform and their interaction with the satellite monitoring system to tackle illegal logging (DEMO with high level of mechanization)	Romania, (specific area to be defined in T4.1)	ASFOR	The demo will feature an improved prototype system (platform and machines), upgraded according to the results of Demo1 (if necessary). SILVA will provide the forest stand and logistics assistance. UNITBV the scientific supervision.	The demonstration will have a regional scale as it will involve both forest operations and satellite monitoring. The results will be applicable worldwide for illegal logging control. Specific focus of the DEMO: to demonstrate performance of the platform for value chain optimization (operative and economic benefits) coupled with the illegal logging control system (T5.4) to provide a complete tool for chain of	500 trees felled and processed.	About 1,500 logs (roughly 375 m3 of roundwood) marked, traced and assessed in quality.

Demonstrator	Location	Partner	Description	Scale/Capacity	Type and volume of input materials/ products	Type and volume of output materials/ products
				custody establishment and environmental protection. For this purpose, among the typical stakeholders invited, particular stress will be given to the involvement of public authorities.		
5 Demonstration of the full SINTETIC system, including harvester prototype, the sawmill sensors and the geodatabase platform (DEMO with high level of mechanization)	Procurement area of the sawmill in Transtrand, Sweden.	FISKAR	Under the lead of the industrial partner, this demo will include the forest procurement as well as the industrial transformation, process optimization and the continuity of the traceability system to sawn wood. Due to the importance of this demo for data feeding to Tasks 5.1 and 5.2, the minimum number of trees harvested will be 1,000. FISKAR will provide the stand to be harvested and the logistics support through its network of timber providers. The value of the timber harvested by OTME will compensate the service. MICRO will run the sawn wood traceability. UEF will provide scientific supervision.	The demonstration will have a local scale as it will focus on the current procurement area of the sawmill. The results will be immediately replicable in the procurement area of any sawmill equipped with the same (or similar) array of industrial sensors. Specific focus of the DEMO: demonstrate the whole extension of the platform and its services, ranging from forest inventory to the final products of the sawmill, providing also additional industrial data for WP5 modelling.	1000 trees felled and processed.	About 3000 logs (roughly 750 m3 of roundwood) marked, traced and assessed in quality. From these, the sawmill will produce and trace about 300 m3 of sawn products (e.g., boards, beams, CLT, etc.)
6 Final demonstration of the full SINTETIC	Procurement area of the sawmill in	PIVET	This will be the final demo, featuring the system in its maximum level of improvement after several cycles of upgrading (if required). Also in this case,	The demonstration will have a local scale as it will focus on the current procurement area of the sawmill. The results will be	1000 trees felled and processed.	About 3000 logs (roughly 750 m3 of roundwood) marked, traced and assessed in

Demonstrator	Location	Partner	Description	Scale/Capacity	Type and volume of input materials/ products	Type and volume of output materials/ products
system, including harvester prototype, the sawmill sensors and the geodatabase platform (DEMO with high level of mechanization)	Vendée, France.		the minimum number of trees felled and processed will be increased to 1,000, providing to the sawmill about 3,000 logs for sensor scanning. PIVET will provide the stand to be harvested and the logistics support through its network of timber providers. The value of the timber harvested by OTME will compensate the service. MICRO will run the sawn wood traceability. CTFC will provide scientific supervision.	immediately replicable in the procurement area of any sawmill equipped with the same (or similar) array of industrial sensors. Specific focus of the DEMO: given the maturity of the system, this will be the flagship Demo of the project. It will be particularly relevant for dissemination and communication not just at local level but also at EU level. Involvement of stakeholders, public authorities and policy makers will be promoted with an intense informative campaign (EOS, WP6). Additional data to model development (WP5).		quality. From these, the sawmill will produce and trace about 300 m3 of sawn products (e.g., boards, beams, CLT, etc.)
7 Demonstration of the manual system and the geodatabase platform. Integration of the training-to-the-job with current training standards for forest operators.	BOSCAT's operative territory, Barcelona, Spain.	BOSCAT ASEMFO	This demo will feature the manual system deployed both for forest inventory and to implement the platform with the forest value chain data. Forest stands and operators will be provided by BOSCAT. CTFC will provide scientific supervision. Another demo will be organized by ASEMFO in the region of Valencia.	The demonstration will have a local scale, focusing on several harvesting areas of small size (manual operations have a low productivity). Yet, the results of the demonstration and the output of the training format will be readily replicable (an applicable) worldwide.	80 trees manually felled and processed. Due to the lower productivity of the manual system, the number is much lower than the	About 240 logs (roughly 20 m3 of roundwood) marked, traced and assessed in quality.

Demonstrator	Location	Partner	Description	Scale/Capacity	Type and volume of input materials/ products	Type and volume of output materials/ products
(DEMO with low level of mechanization)				Specific focus of the DEMO: Development of the training format to the digital innovation in the frame of EFESC chainsaw certificate courses (CTFC as EFESC secretariat, WP6).	mechanized scenario.	
8 Demonstration of the manual system (smartphone APP and manual tracking system) and the geodatabase platform and the capacity to integrate it with a fully-mechanized and industrial forestry sector (DEMO with low level of mechanization)	Finland, (specific area to be defined in T4.1)	UEF	This Demo will focus on the integration of small-scale systems in the frame of and industrial and mainly mechanized forest value chain. The manual instruments (Task 2.1 and 2.2) will be used for forest inventory, value recovery, products traceability and early quality assessment. UEF will provide scientific supervision and the forest stand concurrently with the organization of a professional training for forest operators.	The demonstration will have a local scale, focusing on several harvesting areas of small size (manual operations have a low productivity). Yet, the results of the demonstration will be replicable in the whole of EU, particularly in Central and Northern European forest value chains. Specific focus of the DEMO: demonstrate the capacity to involve small-scale forestry sector into the digitalized value chain.	80 trees manually felled and processed Due to the lower productivity of the manual system; the number is much lower than the mechanized scenario.	About 240 logs (roughly 20 m3 of roundwood) marked, traced and assessed in quality.
9	Romania, (specific area	ASFOR	This Demo will feature a similar layout and the same roles for SILVA and UEF as in Demo 2. The manual instruments (Task	The demonstration will have a regional scale as it will involve both forest operations and	80 trees manually felled and processed.	About 240 logs (roughly 20 m3 of roundwood)

Demonstrator	Location	Partner	Description	Scale/Capacity	Type and volume of input materials/ products	Type and volume of output materials/ products
Demonstration of the manual system (smartphone APP and manual tracking system) and the geodatabase platform and the capacity to integrate it with the satellite control system against illegal logging. (DEMO with low level of mechanization)	to be defined in T4.1)		2.1 and 2.2) will be used for forest inventory, value recovery, products traceability and early quality assessment. Additionally, they will be used for close-to-real-time harvest monitoring (linked with Task 5.3). Additionally, marked roundwood will be tracked up to the end user facility, demonstrating the traceability system to certify precise product provenance (geolocate).	satellite monitoring. The results will be applicable worldwide for illegal logging control. Specific focus Demonstrate the capacity of satellite monitoring system to be integrated also with low-scale, low-investment manual operations featuring operations control and timber traceability.	Due to the lower productivity of the manual system, the number is much lower than the mechanized scenario.	marked, traced and assessed in quality.
10 Demonstration of the manual system (smartphone APP and manual tracking system) and the geodatabase platform and the capacity to create added value in low-mechanized value chains through the early assessment of timber quality. (DEMO with low level of mechanization)	FMMF's territory, Florence, Italy	FMMF	Along with the forest inventory, value recovery, products traceability and early quality assessment with manual systems this Demo will contribute to develop the training format In this Demo, FMMF will provide the forest stands and workforce. Additionally, this partner will demonstrate the use of the manual digital tools for forest inventory, value recovery, products traceability and early quality assessment. The same activity will further develop the training format (EFESC standard). As stated in T7.4. a joint dissemination event in the Demo site of FMMF should be organized in cooperation with DIGIMEDFOR.	The demonstration will have a local scale, focusing on several harvesting areas of small size (manual operations have a low productivity). Yet, the results of the demonstration and the implementation of the certification and forest aggregation tools will be easily replicable in the EU with minor adaptations to local conditions. Specific focus Demonstrate the synergy of the system with the tool for forest aggregation (T 4.2) and the practical application of the platform for	80 trees manually felled and processed. Due to the lower productivity of the manual system, the number is much lower than the mechanized scenario.	About 240 logs (roughly 20 m3 of roundwood) marked, traced and assessed in quality.

Demonstrator	Location	Partner	Description	Scale/Capacity	Type and volume of input materials/ products	Type and volume of output materials/ products
				the certification timber products on a local certified brand.		

Reviewed by:

WP Leader:	Carla Nati	Date:	18/08/2023

Task 4.2. Demo execution

Work package title

Demonstrations

Task title

Demo execution

Contact person and institution

Stelian Alexandru Borz, Universitatea Transilvania din Brasov (UNITBV), stelian.borz@unitbv.ro

Timeline (in months)

M22-M45

Description

This task will involve the actual value chain, demonstrating in the forest and the industry the developed sensors, tools and overall platform.

The manual (Task 2.2) and mechanized system (Task 2.3), respectively related to the Scenario Low and High will be deployed in 6 countries, either individually or combined for a total of 10 demonstrations (see section 1.2.2).

Prior to harvest, each forest stand will be characterized by a forest inventory carried on both with the local traditional methodology and with the SINTETIC Smartphone APP (Task 2.2). For the demos involving the mechanized system, the prototype of harvester (Task 2.3) will be transferred to the site/country according to the DemoPlan.

The machine will be operated always by the same skilled operator; thus, it will not be necessary to repeat training at each demo-site. All trees and logs will be individually marked and interrelated to the database with quality, process and descriptive data (e.g., wood stiffness, timber assortment, position and time of production, forest plot ID). In the two demos including sawmill processing, the ID of the roundwood entering the industrial transformation will be detected and related to the data provided by the 3D x-ray tomography and all the boards produced from it, tracking them individually throughout all the industrial process (drying, polishing, etc.).

The manual system demos will be carried on by local forest professional operators. For this purpose, the involved personnel will be trained on the digital tools (Task 6.1). Together with the common equipment they will deploy smartphones having installed the SINTETIC APP interfaced with portable timber quality sensors (Task 2.2) provided by the academic and research partners. Additionally, they will utilise the manual marking and ID-reading tools developed in Task 2.1 interfaced with the Smartphone APP. These tools will also be used in the inventory phase to mark standing trees, but just in manual system demos since selective harvesting is mostly performed with motor-manual systems. Internal demo reports will be drafted during the implementation of each demo (MS4.3).

This task will end up presenting 2 tangible results such as the document of the demos 3 to 10 with all evaluations and feedbacks (D4.3 in due date M36) and the Final report including the overall analysis of the demos reporting performance of the prototypes and dissemination results (D4.4 in due date M45).

Planned workshops/events

Planned event	Expected audience	Month

Relevant deliverables and milestones

Deliverables:

D4.3. Testing and evaluating the developed prototypes and technologies (harvester, smartphone app, sawmill sensors, etc.) (Demonstrator, pilot, prototype → PU): Document related to demos 3 to 10 with the reports of the scientific results and technical/practical feedback from users updated after each demo.

The document will report the scientific results and technical/practical feedback from the users. It includes data analysis covering productivity, reliability (both mechanical and digital components), data exchange and transfer, consumption, reading rate of IDs. Users will provide feedback through a form of fixed questions and free comments regarding the usability of the prototypes and suggestions to improve the tools and the system.

A full list of attendants to the public part of the demo as well as the results of a feedback questionnaire will be included as annex. The document will be updated and integrated after each demo with an additional part (T4.2). (M36) **(UNITBV)**

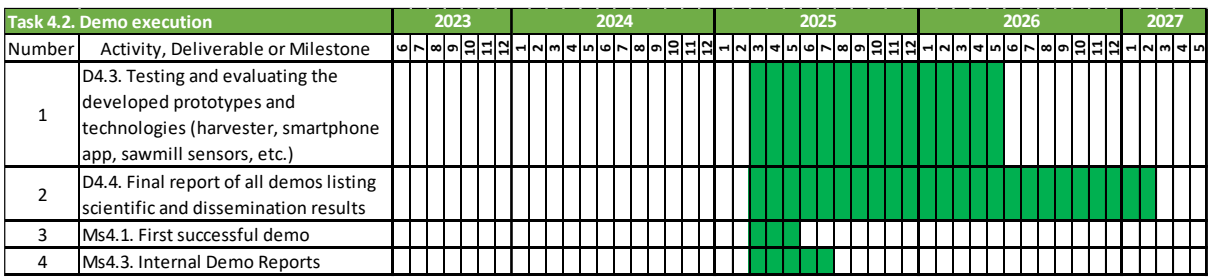
D4.4. Final report of all demos listing scientific and dissemination results (Demonstrator, pilot, prototype → PU): Overall analysis of the demos reporting performance of the prototypes, feedback from users and stakeholders, demos attendance. The document will include the overall analysis of the demos reporting performance of the prototypes, overall cost of the system's application, reliability of mechanical and digital functions and effectiveness of data transfer. It will include a section reporting the effort required for maintenance of the system and the expected reduction (if any) in productivity compared to the current work system, also based on the feedback from users and stakeholders. (T4.2) (M45) **(UNITBV)**

Milestones:

Ms4.1 – First successful demo: Dataset reporting the data collected and transmitted during the demo publicly available on the Geodatabase. (SOBJ7). (M24) **(CNR)**

Ms4.3 – Internal Demo Reports: Proofs of internal reports. (SOBJ5). (M26) **(UNITBV)**

Task timetable



Roles and responsibilities

Partner	Action
UNITBV	Task leader, host for Demos 4 and 9. Prepares the deliverables and the templates for data and information reporting, including the indicators needed for assessment. Collaborates with the involved partners for gathering the data for reports.
CTFC	Active in Demo 6. Helps with the testing and evaluation by scientific supervision. Active in Demo 7. Helps with testing and evaluating the developed prototypes and with providing the data and information needed for reporting.
MiCRO	Active in Demo 6. Runs traceability system and provides the data needed for evaluation and reporting.
BLUEB	Active in Demo 1. Integrates the databases. Provides the data and information needed for reporting. Active in Demo 2 where replicates the experience from Demo 1 after improvement and provides the data and information needed for reporting.
OTME	Active in Demo 5. Supports the testing and evaluation of the system. Provides the data needed for reporting. Active in Demo 6. Supports the testing and evaluation of the system. Provides the data needed for reporting.
SIMTRO	Deploys RFID systems and supports the development of evaluation tools for the Demos.
INNO	Decodes the optical marking systems and supports the development of evaluation tools for the Demos.
FMMF	Active in Demo 10. Provides the stand, workforce and organizes the demonstration. Provides the data and information needed for reporting.
TREE	Supports the development of evaluation tools for the Demos.
PIVET	Active in Demo 6. Provides the stand for the testing and evaluation of improved full system.
CNR	Active in Demo 1. Provides the scientific support, data and information needed for reporting.
ARBO	Supports the development of evaluation tools for the Demos.
BOSCAT	Active in Demo 7. Supports the testing and evaluating the developed prototypes and with providing the data and information needed for reporting.
LAMMA	Supports the development of evaluation tools for the Demos.
UEF	Active in Demo 3. helps with testing and evaluating the harvester prototype and geodatabase, draws up on improvements needed, and provides the data and information needed for reporting. Active in Demo 5. Provides scientific support for running the demo. Active in Demo 8. Provides the stand, instruction, and supports the evaluation and reporting by providing the necessary data and information.
FISKAR	Active in Demo 5 – Full Sintetic System. Provides the site and logistic assistance for running the demo.
SILVA	Active in supporting Demos 4 and 9. Provides the site(s) and logistic assistance for running the demo.
ASEMFO	Supports the development of evaluation tools for the Demos.
KONE	Active in Demo 3. Provides support for the implementation of Demo.

Partner	Action
ASFOR	Active in supporting Demos 4 and 9. Provides support and logistics needed to run the Demos.

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
1	Delays in the development of prototypes	Medium	High	An "early warning" system to resolve risks as part of project management plan (D7.1) Demonstrations will start with the first system completed (manual or mechanical) as their use is independent
2	Prototypes/adaptations do not perform as expected in terms of precision, reliability and/or robustness	Medium	High	The reiterate feedback from each demo, followed by system repair/improvement will allow to gradually solve this issue
3	Low stakeholder engagement	Low	Medium	Communication activities will be revised and enhanced with additional partners' cooperation
4	Data not adequate to build the planned models	Low	High	The sequence of Demos will allow to intensify the data collection and adjust the test plan in the latest field activities in order to collect the required data for modelling

Estimated resources in terms of PM

PARTER	WP4 - Demonstrations (CNR) - (November 24 - February 27)
	T4.2
	Mar25 - Feb27
CTFC	9.5
MICRO	12
BLUEB	2
OTME	18.5
SIMTRO	4

UNITBV	**20**
INNO	5
FMMF	4
TREE	1
PIVET	5
CNR	3
ARBO	0.75
BOSCAT	2
LAMMA	0.25
UEF	6
FISKAR	3
SILVA	6
ASEMFO	2
KONE	0.5
ASFOR	1.5
TOTAL	**106**

Health and safety

Applicable standards from each country in question for testing will be reviewed to design the implementation of Demos in full accordance with the legal requirements.

Legal issues

Authorizations or permits needed, legal constrains regarding the risk of fire/nesting species on the area, legal constraints of the technology or the libraries to build the models used, National/Bank holydays, etc.

Reviewed by:

WP Leader: Carla Nati Date: 18/08/2023

Task 4.3. Enhancement of forest value and management with digital tools

Work package title

Demonstrations

Task title

Enhancement of forest value and management with digital tools

Contact person and institution

Guido Milazzo, BLUEBILOBA STARTUP INNOVATIVA SRL (BLUEB), guido.milazzo@bluebiloba.com

Timeline (in months)

M22-M36

Description

With purpose to boost aggregation of fragmented forests, this task will demonstrate the synergy resulting from the integration of the Forest-Sharing and the SINTETIC platforms.

The portable digital tools (Task 2.1, Task 2.2) will be deployed in Italy and Spain to enhance forest inventory of fragmented forests, generating a homogeneous inventory (mosaic) to facilitate planning and management. The tracking and operations control features will be used to facilitate management of harvest operations, product tracking, invoicing, and exact revenue distribution among multiple landowners.

The combined platform will also host and demonstrate in Italy:

a) a citizen-science free mobile APP for wildfire risk self-assessment, complementary to the general inventory and management data systems

b) a full digital certification process (chain of custody) of timber products based on the proprietary brand of the FMMF (presently certified with traditional documental service).

This latter activity will be used to demonstrate the robustness and cost reduction provided by the single-item digital traceability system and the overall SINTETIC platform.

A user-friendly call to action tool for forest owners will be developed to minimize the technophobic attitude of forest owners. Personal and forest data will be used (cadastral information, country, legal framework, etc.) in a short and standardized path, ensuring the necessary information for the forest owners' understanding and engagement.

A set of video tutorials will be recorded with clear information on the required steps.

Regarding cultural barriers, a dedicated section included in the Forest Sharing Platform will be developed. This will present all the possible forest management attitudes to be chosen, individually or in an integrated way.

Each forest management attitude will report a disclaimer, necessary to train and inform the forest owner on the technical, managerial, regulatory, and financial aspects relating to the chosen attitude. Also, a FAQ section will be included inside the Forest Sharing Platform, based on consortium previous knowhow, and on the interactions, arisen with the stakeholders during the project implementation.

The implementation of task 4.3 digital tools aims to set up a combined set of decision support systems and bottom-up tools that allow an active involvement and call to action for forest owners, supply chain stakeholders and private citizens.

Inputs:

The requirements and conceptual framework for task 4.3 digital tools will be defined according to SINTETIC Geodatabase general requirements.

Activities:

The activities for this task can be summarised as follow:

- **Task 4.3.1: Digital Tools Design and Specifications (BLUEB,** TREE, BOSCAT, FMMF, LAMMA, CTFC, CNR**):** In this task, the detailed design and specifications of the digital tools will be developed,

and defined through specifications that will cover all system specification and data model and functional and non-functional requirements defined in WP 1. The design includes defining the structure, schema, and functionalities required to process, store, analyse, and deliver data across the different forest value chain stakeholders involved. The core digital tools components will be structured in layers and modules based on the user engagement flow established in the Forest Sharing method, the specifications needed in the chain of custody certification process and the know-how acquired in the citizen science processes related to wildfire risk assessment. All tools will be developed in parallel, to optimize the development phases and the involvement of the other partners.
In addition, the design for a mobile application for forest inventory will be carried out. This application will be developed in Android. The design will include tree measurement tools, RFID and Bluetooth connections and mapping features.

- **Task 4.3.2: Database and Web Service Infrastructure Development (BLUEB,** TREE, CTFC, CNR**):** The web service infrastructure supporting data acquisition, communication, and storage will be developed in this task; this involves creating the necessary APIs, endpoints, and data communication channels. In this task, the development of open-source software components will take place. The open-source software components as well as data flux web service will be developed to link related digital tools with main Geodatabase
- **Task 4.3.3: Internal testing (BLUEB,** TREE, BOSCAT, FMMF, CTFC, CNR, INNO, ARBO**):** the digital tools package will undergo internal extensive testing activities with the partners involved in the tasks with a multilevel approach to collect a first set of feedback and proceed with the necessary corrections/debugging
- **Task 4.3.4: External Testing (BLUEB,** BOSCAT, FMMF, CTFC, CNR**):** the developed digital tools will be tested in a relevant operating environment and with external users involved together with the project partners, to test their reactions, involvement, problems and implement the user experience (for example, information packages allocated in the front end)
- **Task 4.3.5: Development of a Mobile application for inventory and traceability (TREE**, BLUEB, CTFC, CNR): A mobile application for forest inventory will be developed that includes various tools for single tree measurement and traceability, including RFID reader and Bluetooth connectivity with measurement tools like callipers and hypsometers. Additionally, this mobile application will feature mapping functionalities to enhance the visualization of forest boundaries and inventory units. It will also incorporate offline data storage capabilities to ensure functionality in areas with no internet reception. The app will be fully compatible with D2.5 - the Web Application designed to process and report forest inventory information, as developed in WP 2.2.
- **Task 4.3.6: Documentation (BLUEB,** FMMF, CTFC, CNR**)**: Documentation of the developed tools will be created to facilitate public dissemination and the interactions with other Geodatabase modules

Planned workshops/events

Planned event	Expected audience	Month
Initial workshop	Partners involved in the task	February 2025
Design Review	Partners involved in the task	July 2025
Testing Implementation Review	Partners involved in the task and external partners	December 2025
Final Implementation Review	Partners involved in the task	May 2026

Relevant deliverables and milestones

Deliverables:

D4.2. Integrated web platforms and portable digital tools to enhance forest management of fragmented forests (Document, report → PU): The document is related to the Demos 1 and 2. It will report the process to aggregate the fragmented forest ownership with the integration of the online platforms of Forest-Sharing and SINTETIC's geodatabase and webservices. It will describe how the portable digital tools had supported and facilitated the promotion of the service, the aggregation of forests, and, if applicable, the practical management of the aggregated ownership. Additionally, it will report the results achieved using the citizen science free mobile APP for wildfire risk self-assessment and the certification of a local timber product.

The document will also include a table reporting all the fragmented forests integrated in the Forest Sharing and SINTETIC Platforms (Task 4.3) separately for the two countries involved (Italy and Spain). (M36) **(BLUEB)**

D4.5. Mobile application for inventory and traceability (Document, report → PU): A mobile application for forest inventory that encompasses tools for forest measurement, single tree traceability, and Bluetooth connectivity with measurement tools like callipers and hypsometers. This mobile application will be compatible with D2.5 - Web Application designed to process and report forest inventory information, developed in WP 2.2 (M36) **(TREE)**

Milestones:

Ms4.3 – Timber product certification: Application demonstrated and carried on in practice in Demo8 and reported in Deliverable 4.4. (SOBJ2). (M38) **(BLUEB)**

Ms4.4 – Mobile application for inventory and traceability prototype review (Deliverable 4.3. (SOBJ2). (M38) **(BLUEB)**

Task timetable

Task 4.3. Enhancement of forest value and management with digital tools		2023						2024												2025												2026												2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D4.2. Integrated web platforms and portable digital tools to enhance forest management of fragmented forests																																															
2	D4.5. Mobile application for inventory and traceability																																															
3	Ms4.2. Timber product certification																																															
4	Ms4.4 – Mobile application for inventory and traceability prototype review																																															

Roles and responsibilities

Partner	Action
BLUEB	Task leader: BLUEB will take charge of overall development activities of the digital tools, and will take part in forest owner/ private citizen specific requirements analysis BLUEB will oversee the development of this task ensuring the integration of data and applications with the systems architecture; finally, BLUEB will carry out other partners needs and requirements analysis **Involved in all tasks**
CTFC	Project Leader, will take charge of overall coordination **Involved in all tasks**
INNO	INNO will contribute to the digital tools' testing and deployment. **Involved in task 4.3.3**

Partner	Action
FMMF	FMMF will provide needs and requirements, review the design and test the digital certification process (chain of custody) of timber products based on its proprietary brand, and the free mobile APP for wildfire risk self-assessment **Involved in tasks 4.3.1, 4.3.3, 4.3.4., 4.3.5**
TREE	TREE will contribute to the digital tools' development, integration, testing and deployment. And lead the development of the Mobile application for inventory and traceability. **Involved in tasks 4.3.1, 4.3.2, 4.3.3**
CNR	WP4 Coordination Leader, will take charge of WP coordination and general development **Involved in all tasks**
ARBO	ARBO will contribute to the digital tools' testing and deployment. **Involved in task 4.3.3**
BOSCAT	BOSCAT will provide needs and requirements, review the design and test the Spanish version of Forest Sharing Platform **Involved in tasks 4.3.1, 4.3.3, 4.3.4.**
LAMMA	LAMMA will support regarding proper integration of the digital tools with the main geodatabase **Involved in task 4.3.1**

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
1	Delays in the development of prototypes	Medium	High	An “early warning” system to resolve risks as part of project management plan (D7.1) Demonstrations will start with the first system completed (manual or mechanical) as their use is independent
3	Low stakeholder engagement	Low	Medium	Communication activities will be revised and enhanced with additional partners’ cooperation
4	Data not adequate to build the planned models	Low	High	The sequence of Demos will allow to intensify the data collection and adjust the test plan in the latest field activities in order to collect the required data for modelling

Estimated resources in terms of PM

PARTER	WP4 - Demonstrations (CNR) - (November 24 - February 27)
	T4.3
	Mar25 - May26
CTFC	1
BLUEB	**7**
INNO	1
FMMF	4
TREE	14
CNR	1
ARBO	0.5
BOSCAT	2
LAMMA	0.25
TOTAL	**30.75**

Health and safety

Not Applicable

Legal issues

Legal constrains of the technology or the libraries to build the models used; compatibility GDPR policies issues between Italian and Spanish versions of the Forest Sharing platform

Reviewed by:

WP Leader: Carla Nati Date: 18/08/2023

WP5 – Data analysis and modelling.

…

Task 5.1. Wood quality modelling: boards-roundwood-tree interrelations

Work package title

Data analysis and modelling

Task title

Wood quality modelling: boards-roundwood-tree interrelations

Contact person and institution

Blas Mola, University of Eastern Finland (UEF), School of Forest Sciences, blas.mola@uef.fi

Timeline (in months)

M19-M36

Description

The task develops a portfolio of individual-tree wood quality (WQ) models using data provided by the Geodatabase (WP3), ground data and demos (WP4).

Models and analysis are designed to be integrated into existing forest dynamic and simulation systems, where timber quality, tree structure and wood anatomy as well as yield and characteristics of final boards will be linked to the forest management and growing history of the original forest plots.

The georeferenced positioning of the original tree will be used to assess the influence of microclimatic conditions (defined by proxy variables).

Specific aims are oriented to analyse available multisource data (boosted by the single item traceability system), and the timber quality data as returned by the sawmill sensors (T2.3), where (X-ray) will be used to train the stem analysis performed by the onboard LiDAR (T2.5), to allow an optimal tree bucking according to the timber assortments' value and real-time demand from the sawmill, increasing overall yield and value recovery from the same forest resource. Quality and homogeneity as well as the efficiency of final treatments (kiln drying) of the final boards will be assessed concerning all processes and operations along the supply chain. In addition, the anatomic all the wood characteristics disclosed by the tomography, including non-timber quality factors (e.g., density patterns, branches size and distribution, whorls inter-distance, etc.) will be addressed in the analysis and related to the historic data regarding silvicultural treatments as well as by biotic/abiotic factors (e.g. pests, drought) available for the forest plot of origin.

This analysis will be incorporated in model development, providing a scientific basis for an improved and resilient forest management (silvicultural treatments) aiming both at an increased forest health, stability and (indirectly) productivity.

The modelling effort will be performed by combining traditional (empirical and process models), geostatistical, and machine learning approaches.

Planned workshops/events

Planned event	Expected audience	Month

Planned event	Expected audience	Month

Relevant deliverables and milestones

Deliverables:

D5.1. Wood quality models relating timber properties with stand and process data (Document, report → PU): Portfolio of management-focused wood quality models for the main species. The results T5.1 return wood quality models that link wood properties (wood density, defects, damages, etc.) with forest management variables, local conditions, and potential climate-induced stress for different species and forest typologies. Models are collected in a report and data/code presenting individual tree models for wood quality, expressed as a set formulas addressing variables of wood structure collected from the sawmills (T2.4) linked to the original conditions of the tree in the forests provided by the geo-database (T3.2). The latter provides information concerning stand variables surrounding the tree (basal area, tree density, etc. derived from ground data and from D5.2) as well as topography, soil and climate conditions. A distinction is made for:

a) models predicting wood density and indicators of fibre quality,

b) models addressing defects and damages.

The models are prepared to be connected to existing growth and yield models in order to be integrated into model simulators and decision support systems. This will facilitate the integration of wood quality variables into future forest management decisions to enhance forest health and resilience to adversities as well as timber value through appropriate silvicultural treatments. (T5.1) (M36) **(UEF)**

Milestones:

Ms5.1 – Wood Quality modelling: Available wood quality (WQ) predictive models for the main forest species, linked to forest management and stand variables. (SOBJ2). (M28) **(UEF)**

Task timetable

Task 5.1. Wood quality modelling: boards-roundwood-tree interrelations		2023						2024												2025												2026												2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D5.1. Wood quality models relating timber properties with stand and process data																																															
2	Ms5.1. Wood Quality modelling																																															

Roles and responsibilities

Partner	Action
UEF	UEF is the WP leader, coordinating all tasks; UEF and CTFC will provide model simulators and biometric data for the species and will contribute to georeferenced information production; MICRO: will support the interpretation of the timber quality data; TREE will ensure the interchange of data with the Geodatabase and, together with UEF and CNR develop algorithms for real time analysis of LiDAR data; CNR will develop the algorithm for satellite data interpretation while SILVA will provide the training data for the implementation of the illegal logging alert, UNITBV and BLUEB will perform the economic and technical assessments of the model integration and the ground truthing of the illegal logging tool.

Partner	Action
CTFC	
MiCRO	
BLUEB	
INNO	
CNR	
ARBO	

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
4	Data not adequate to build the planned models	Low	High	The sequence of Demos will allow to intensify the data collection and adjust the test plan in the latest field activities in order to collect the required data for modelling
2				

Estimated resources in terms of PM

PARTER	WP5 - Data analysis and modeling (UEF) - (December 24 - May 27)
	T5.1
	Dec24 - May26
CTFC	18
MICRO	12
BLUEB	0.25
INNO	5
CNR	3
ARBO	1
UEF	**12**
TOTAL	**51.25**

Health and safety

Not Applicable

Legal issues

Authorizations needed, legal constrains of the technology or the libraries to build the models used.

Reviewed by:

WP Leader: Blas Mola Date: 31/10/2023

Task 5.2. Mobile LiDAR data analysis for remaining trees

Work package title

Data analysis and modelling

Task title

Mobile LiDAR data analysis for remaining trees

Contact person and institution

Ninni Saarinen, University of Eastern Finland (UEF), School of Forest Sciences, ninni.saarinen@uef.fi

Timeline (in months)

M19-M48

Description

This task will focus on the use of the stand-level data collected by the LiDAR installed on the harvester prototype (T2.3).

The data is collected for the main function of the LiDAR to optimize the tree bucking and maximize value recovery. Yet, the point cloud generated may provide several additional services, including: LiDAR data for inventory of remaining trees (TREE) and LiDAR data to identify the occurrence of deadwood (UEF).

LiDAR will be used during the harvest operations to optimize the tree bucking and maximize value recovery based on the specific local timber assortments.

Field measurements before harvesting will ensure that we are able to assess both these parameters and develop required LiDAR analysis.

LiDAR data will also be used to create a precise CO2 inventory, discriminating between commercial stems -to be extracted from the forest- and crown/branches/deadwood. Integrating this data with the data provided along

the whole value chain and up to the final timber products a precise calculator of CO2 fluxes and stocks will be built.

This will provide forest owners with a tool for carbon credits calculation. Coupled with the models forecasting carbon stock increase from the trees scanned by LiDAR this will provide a comprehensive tool for forest management in view of maximizing its carbon sink capacity.

A first version of the Terrestrial laser scanning inventory (D5.2) will be presented in M36 and its respective final version (D5.5) in M48.

Planned workshops/events

Planned event	Expected audience	Month

Relevant deliverables and milestones

Deliverables:

D5.2. Terrestrial laser scanning inventory of standing trees for stand health assessment and for tree optimal bucking (Demonstrator, pilot, prototype → PU): TLS-derived inventory data of remaining trees processed. This deliverable uses the processed LiDAR data (T2.3) of remaining trees. The result is a set of harmonised and processed data to be compared to a standardised inventory of trees, in order to be included in the models (D5.1). Data is used to produce estimations of carbon balance, biodiversity indicators and indices of tree slenderness and standing tree structure (linked to the risk of wind and snow damage), among other ecosystem services in T5.2. The deliverable will include a report as well as the resulting georeferenced inventory data and derived variables available through a link. (T5.2) (M36) **(UEF)**

D5.5. Terrestrial laser scanning inventory of standing trees for stand heath assessment and for tree optimal bucking (Final version) (Demonstrator, pilot, prototype → PU): TLS-derived inventory data of remaining trees processed. This deliverable uses the processed LiDAR data (T2.3) of remaining trees. The result is a set of harmonised and processed data to be compared to a standardised inventory of trees, in order to be included in the models (D5.1). Data is used to produce estimations of carbon balance, biodiversity indicators and indices of tree slenderness and standing tree structure (linked to the risk of wind and snow damage), among other ecosystem services in T5.2. The deliverable will include a report as well as the resulting georeferenced inventory data and derived variables. (T5.2). (M48) **(UEF)**

Milestones:

Ms5.2 – TLS data: Processed data of remaining trees is available and suitable for modelling. (SOBJ5). (M30) **(UEF)**

Task timetable

Task 5.2. Mobile LiDAR data analysis for remaining trees		2023						2024												2025												2026												2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D5.2. Terrestrial laser scanning inventory of standing trees for stand health assessment and for tree optimal bucking																																															
2	D5.5. Terrestrial laser scanning inventory of standing trees for stand heath assessment and for tree optimal bucking (Final version)																																															
3	Ms5.2. TLS data																																															

Roles and responsibilities

Partner	Action
UEF	UEF is the WP leader, coordinating all tasks; UEF and CTFC will provide model simulators and biometric data for the species and will contribute to georeferenced information production; MICRO: will support the interpretation of the timber quality data; TREE will ensure the interchange of data with the Geodatabase and, together with UEF and CNR develop algorithms for real time analysis of LiDAR data; CNR will develop the algorithm for satellite data interpretation while SILVA will provide the training data for the implementation of the illegal logging alert, UNITBV and BLUEB will perform the economic and technical assessments of the model integration and the ground truthing of the illegal logging tool.
CTFC	
BLUEB	
TREE	
CNR	

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
4	Data not adequate to build the planned models	Low	High	The sequence of Demos will allow to intensify the data collection and adjust the test plan in the latest field activities in order to collect the required data for modelling
2				

Estimated resources in terms of PM

PARTER	WP5 - Data analysis and modeling (UEF) - (December 24 - May 27)
	T5.2
	Dec24 - May27
CTFC	18
BLUEB	0.25
TREE	8
CNR	3
UEF	**12**
TOTAL	**41.25**

Health and safety

Not Applicable

Legal issues

Authorizations needed, legal constrains of the technology or the libraries to build the models used.

Reviewed by:

WP Leader: Blas Mola Date: 31/10/2023

Task 5.3. Illegal logging alert service

Work package title

Data analysis and modelling

Task title

Illegal logging alert service

Contact person and institution

Lorenzo Arcidiaco, Consiglio Nazionale delle Ricerche (CNR), lorenzo.arcidiaco@cnr.it

Timeline (in months)

M19-M48

Description

This task will develop an early alert system for illegal logging detection. It will combine:

1) remotely sensed

2) ground recorded data.

Automatic detection of land cover changes will be based on satellite remote sensing datasets (Copernicus Sentinel 1&2) and on Synthetic Aperture Radar (SAR) interferometry technique which uses two SAR images of the same area acquired at different times, returning an interferograms map showing ground-surface displacement (range change) between the two satellite passes (about 7 days frequency).

Since forest cover change may be due to natural disturbances (e.g. landslides, storms, wildfire), illegal and legal logging, the non-relevant information must be filtered out, concentrating the control efforts on unexpected events.

For this purpose, the algorithm will run a spatial query on a geodatabase upload on the bases of the integration of the forest inventory and the harvesting manager (components of Task 3.3).

For one year the areas interested by legal operations (SILVA) will be used to train the model to better identify land cover changes in forested areas in any weather and vegetational conditions (with or without leaves).

The algorithm will be developed and tested on a specific area (county Brasov, Romania), yet it will be immediately up-scalable at regional or national level in any EU area.

A first version of the Satellite alert system against illegal logging (D5.3) will be presented in M36 and its respective final version (D5.6) in M48.

Planned workshops/events

Planned event	Expected audience	Month

Relevant deliverables and milestones

Deliverables:

D5.3. Satellite alert system against illegal logging (Demonstrator, pilot, prototype → PU): Early alert system for illegal logging detection. It will be based on an algorithm designed to automatically elaborate Sentinel-2 and Sentinel-1 satellite data to identify forest cover changes. It will be integrated with automatically ground recorded data (with the system developed in D2.3, D2.4 and 2.5) and made available by D3.1. The combination will enable to discriminate legal operations from unexpected harvesting (possibly illegal). (T5.3). The deliverable will include an algorithm whose description and validation results will be detailed in a report. Access to the interface of the system will be provisionally granted to the reviewers to evaluate its functionality. (M36) **(CNR)**

D5.6. Satellite alert system against illegal logging (Final version) (Demonstrator, pilot, prototype → PU): Early alert system for illegal logging detection. It will be based on an algorithm designed to automatically elaborate Sentinel-2 and Sentinel-1 satellite data to identify forest cover changes. It will be integrated with automatically ground recorded data (with the system developed in D2.3, D2.4 and 2.5) and made available by D3.1. The combination will enable to discriminate legal operations from unexpected harvesting (possibly illegal). (T5.3) (M48) **(CNR)**

Milestones:

Ms5.3 – Illegal logging alert: The illegal logging alert system detects illegal logging and properly discriminates from other disturbances. (SOBJ6). (M30) **(CNR)**

Task timetable

Task 5.3. Illegal logging alert service		2023						2024												2025												2026												2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D5.3. Satellite alert system against illegal logging																																															
2	D5.6. Satellite alert system against illegal logging (Final version)																																															
3	Ms5.3. Illegal logging alert																																															

Roles and responsibilities

Partner	Action
CNR	UEF is the WP leader, coordinating all tasks; UEF and CTFC will provide model simulators and biometric data for the species and will contribute to georeferenced information production; MICRO: will support the interpretation of the timber quality data; TREE will ensure the interchange of data with the Geodatabase and, together with UEF and CNR develop algorithms for real time analysis of LiDAR data; CNR will develop the algorithm for satellite data interpretation while SILVA will provide the training data for the implementation of the illegal logging alert, UNITBV and BLUEB will perform the economic and technical assessments of the model integration and the ground truthing of the illegal logging tool.
CTFC	
BLUEB	
UNITBV	
TREE	
LAMMA	
UEF	
SILVA	Due to budget restrictions SILVA won't declare personal costs in this work package but will contribute with sharing the data, as the costs are included in other WPs

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
4	Data not adequate to build the planned models	Low	High	The sequence of Demos will allow to intensify the data collection and adjust the test plan in the latest field activities in order to collect the required data for modelling
2				

Estimated resources in terms of PM

PARTER	WP5 - Data analysis and modeling (UEF) - (December 24 - May 27)
	T5.3
	Dec24 - May27
CTFC	1
BLUEB	0.25
UNITBV	11
TREE	8
CNR	**8**
LAMMA	3
UEF	3
SILVA	0
TOTAL	**34.25**

Health and safety

Not Applicable

Legal issues

Authorizations needed, legal constrains of the technology or the libraries to build the models used.

Reviewed by:

WP Leader: Blas Mola Date: 31/10/2023

Task 5.4. Economic and technical assessment

Work package title

Data analysis and modelling

Task title

Economic and technical assessment

Contact person and institution

Stelian Alexandru Borz, Universitatea Transilvania din Brasov (UNITBV), stelian.borz@unitbv.ro

Timeline (in months)

M22-M45

Description

This task will use all data, field measurements or digitally collected, during the demos at all the stages of the forest value chain: in the forest (manual and mechanical operations), throughout logistic operations and during the industrial transformation process. Data will be analysed to provide basis for cost assessment and evaluation, productivity, and reliability of the new equipment versus the current machinery and work techniques locally deployed by forest companies.

Special attention will be given to possible productivity losses, to assess the robustness of the system (mechanical or software failures) and to the effective capacity to detect IDs and timber quality.

The results, updated after each demo, will provide the data and inputs for WP6 analysis.

Planned workshops/events

Planned event	Expected audience	Month

Relevant deliverables and milestones

Deliverables:

D5.4. Economic and technical assessment of the implementation of SINTETIC technologies developed (harvester, smartphone APP, portable sensors) (Other → PU): Economic and technical assessment of the implementation of SINTETIC applications. Based on the data and feedback provided in D4.3 and D.4.4 it will report an economic and technical assessment of the implementation of SINTETIC applications individually (each single prototype or software) and as a unique system. It will provide economic and technical figures to compare the running costs, productivity and profitability of the SINTETIC system vs. the current work system. (T5.4). The deliverable will be in form of report and links to databases. (M45) **(UNITBV)**

Milestones:

Task timetable

Task 5.4. Economic and technical assessment		2023						2024												2025												2026												2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D5.4. Economic and technical assessment of the implementation of SINTETIC technologies developed (harvester, smartphone APP, portable sensors)																																															

Roles and responsibilities

Partner	Action
UNITBV	UEF is the WP leader, coordinating all tasks; UEF and CTFC will provide model simulators and biometric data for the species and will contribute to georeferenced information production; MICRO: will support the interpretation of the timber quality data; TREE will ensure the interchange of data with the Geodatabase and, together with UEF and CNR develop algorithms for real time analysis of LiDAR data; CNR will develop the algorithm for satellite data interpretation while SILVA will provide the training data for the implementation of the illegal logging alert, UNITBV and BLUEB will perform the economic and technical assessments of the model integration and the ground truthing of the illegal logging tool.
CTFC	
BLUEB	
TREE	
CNR	
UEF	

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
1				

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
2				

Estimated resources in terms of PM

PARTER	WP5 - Data analysis and modeling (UEF) - (December 24 - May 27)
	T5.4
	Mar25 - Feb27
CTFC	1
BLUEB	0.25
UNITBV	**20**
TREE	1
CNR	3
UEF	7
TOTAL	**32.25**

Health and safety

Not Applicable

Legal issues

Authorizations needed, legal constrains of the technology or the libraries to build the models used.

Reviewed by:

WP Leader: Blas Mola Date: 31/10/2023

WP6 – Exploitation, dissemination and communication.

…

Task 6.1. Training to digitalization

Work package title

Exploitation, dissemination and communication

Task title

Training to digitalization

Contact person and institution

Matteo Mazzoni, Associazione Foresta Modello delle Montagne Fiorentine (FMMF), progettazione@forestamodellomontagnefiorentine.org

Timeline (in months)

M13-M43

Description

This task will allow the forest operators to acquire the necessary skills to deploy the new digital tools in their every-day work. For the purpose, a training format will be developed by professional trainers of EFESC schools (FMMF, CTFC).

This format will focus mainly on manual operators, typically unused to digital tools. As a first step, the trainers will be instructed to the use of the new tools by the technology developers (ARBO, TREE, CNR).

Based on this experience, they will design a training format compatible as add-on to the common EFESC courses (EU chainsaw certificate, https:// efesc.org).

This format will be applied to train the personnel involved in the demos (WP4) as well as further trainers, and vocational/young workers in Italy, Spain, Romania and Finland.

One annual EFESC meetings will be held in occasion of a project demo to show the system to professional trainers of the 9 EFESC member countries.

Additionally, this task will provide guidelines, manuals and videos to integrate the formal training. It will include the technology innovations to the mechanized system (harvester based), considering that the machine operators already have at least basic digital skills. Instructions and manuals will be provided also for the industrial system (sawmill).

All training documents will be translated into several languages (English, Italian, Spanish, Catalan, Romanian and Finnish).

Planned workshops/events

Planned event	Expected audience	Month

Planned event	Expected audience	Month

Relevant deliverables and milestones

Deliverables:

D6.5. Training to digitalization of forest operators (Document, report → PU): Report on the training of operators and the related products (videos, manuals) usage. It details the number of forest trainers (min. 20 persons) trained to teach the use of the digital tools developed as well as the result and feedback of the forest operators trained at different level (e.g., vocational schools, professionals, etc, min. 60 persons). Includes the document related to the training format proposed to EFESC as course integration for chainsaw operators. (T6.1) Training to digitalization of forest operators is a cross-cutting activity. It is partially needed for the purposes of WP4, to carry on demonstrations. Yet, this training is addressed to forest operators and professional trainers. The latter are particularly important in a short-mid-term perspective to disseminate and implement the results of the project. (M43) **(CTFC)**

Milestones:

Ms6.1 – Training to digitalization: Proposal of integration of the training format sent to the attention of the general assembly of EFESC. (SOBJ7). (M32) **(FMMF)**

Task timetable

Task 6.1. Training to digitalization		2023						2024												2025												2026												2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D6.5. Training to digitalization of forest operators																																															
2	Ms6.1. Training to digitalization																																															

Roles and responsibilities

Partner	Action
FMMF	
CTFC	
MiCRO	
OTME	
SIMTRO	
UNITBV	
TREE	
PIVET	
CNR	
BOSCAT	
UEF	

SILVA	

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
3	Low stakeholder engagement	Low	Medium	Communication activities will be revised and enhanced with additional partners' cooperation
2				

Estimated resources in terms of PM

PARTER	WP6 - Exploitation, dissemination and communication (EOS) - (June 23 - May 27)
	T6.1
	Jun24 - Dec26
CTFC	3
MICRO	3
OTME	15
SIMTRO	0.5
UNITBV	4
FMMF	**6**
TREE	8
PIVET	1
CNR	4
BOSCAT	1
UEF	2.5
SILVA	5
TOTAL	**53**

Health and safety

Not Applicable

Legal issues

Authorizations needed, legal constrains of the technology or the libraries to build the models used.

Reviewed by:

WP Leader: Silvia Melegari Date: 01/09/2023

Task 6.2. Dissemination Actions

Work package title

Exploitation, dissemination and communication

Task title

Dissemination Actions

Contact person and institution

Berta Carreño, Consorci Centre de Ciencia i Tecnologia Forestal de Catalunya (CTFC), berta.carreno@ctfc.cat

Timeline (in months)

M01-M48

Description

The consortium will produce at least 5 scientific articles of peer-reviewed research papers, submitted to high-quality scientific journals and present their results in 3 or more conferences. All publications will be available in open-access via the ´gold´ open access route. This task will also produce a minimum of 2 Practice Abstracts produced according to the EIP-AGRI Common Format and disseminated through the EIP-AGRI portal (D6.3, D6.4). EOS will organise one dissemination event for policymakers and representatives of the forest owners, forest contractors and timber industry. Within the last three months of the project, a final event will be held to present the project results to 100+ stakeholders and interested citizens. The Conference will include open sessions, round tables and workshops to enable different groups to get engaged during the event. All the dissemination strategy will be included under the Communication and dissemination plan (D6.1, D6.2, D6.13), a document guiding partners to an effective dissemination issued at the beginning of the project (M6) and updated when the Demos will provide the first data and visibility (M36 and M48).

Planned workshops/events

Planned event	Expected audience	Month
Final event	Over 100 attendees	45
Dissemination event	40 attendees	40

Relevant deliverables and milestones

Deliverables:

D6.1. Communication and dissemination plan (update 1st Interim Report) (Document, report → PU): Detailed plan reporting the communication actions and dissemination strategy, outlining the strategic objectives, individual responsibilities, target groups, timeline, guidelines, methods, tools, channels, and indicators to monitor the progress. (T6.2). It also will include the progress and results of the cooperation with other selected projects (T7.4). (M06) **(CTFC)**

D6.2. Communication and dissemination plan (update 2nd Interim Report) (Document, report → PU): Update on the Communication and dissemination plan in collaboration with partners, where the Demos will provide the first data and visibility. (T6.2). It also will include the progress and results of the cooperation with other selected projects (T7.4). (M36) **(CTFC)**

D6.3. Practice abstract - batch 1 (Document, report → PU): Practice Abstract produced according to the EIP-AGRI Common Format and disseminated through the EIP-AGRI portal.

This deliverable contains 2 practice abstracts:

1- Procedures to trace the origin of timber products (CTFC)

2- Early quality assessment of timber products (CNR) (T6.2), in cooperation with DIGIMEDFOR

(M23) **(CNR)**

D6.4. Practice abstract - batch 2 (Document, report → PU): Practice Abstract produced according to the EIP-AGRI Common Format and disseminated through the EIP-AGRI portal.

This deliverable contains 3 practice abstracts:

3- Technology for products tracking in sawmill and its practical applications (MICRO)

4- Aggregation of fragmented forest owners for an integrated management (BLUEB)

5- Contrasting illegal logging of productive and protected forests. (UNITBV) (T6.2).

(M46) **(CNR)**

D6.13. Communication and dissemination plan (update Final Report) (Document, report → PU): Update on the Communication and dissemination plan in collaboration with partners, where the Demos will provide the first data and visibility. (T6.2). It also will include the progress and results of the cooperation with other selected projects (T7.4). (M48) **(CTFC)**

Milestones:

Task timetable

Task 6.2. Dissemination Actions		2023						2024												2025												2026												2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D6.1. Communication and dissemination plan (update 1st Interim Report)																																															
2	D6.2. Communication and dissemination plan (update 2nd Interim Report)																																															
3	D6.13. Communication and dissemination plan (update Final Report)																																															
4	D6.3. Practice abstract - batch 1																																															
5	D6.4. Practice abstract - batch 2																																															

Roles and responsibilities

Partner	Action
CTFC	In charge of creating D6.1, D6.2 and D6.13 Responsible for creation of Practice abstract 1 “Procedures to trace the origin of timber products” (MS3)
MiCRO	Responsible for creation of Practice abstract 3 “Technology for products tracking in sawmill and its practical applications” (MS5)
BLUEB	Responsible for creation of Practice abstract 4 “Aggregation of fragmented forest owners for an integrated management” (MS6)
OTME	
SIMTRO	
UNITBV	Responsible for creation of Practice abstract 5 “Contrasting illegal logging of productive and protected forests” (MS7)
INNO	
FMMF	
TREE	
PIVET	
CNR	In charge of overseeing the fulfillment of D6.3 and D6.4 Responsible for creation of Practice abstract 2 “Early quality assessment of timber products” (MS4)
ARBO	Due to budget restrictions ARBO won’t declare personal costs in this work package but will contribute as the costs are included in other WPs
BOSCAT	
LAMMA	Due to budget restrictions LAMMA won’t declare personal costs in this work package but will contribute as the costs are included in other WPs

Partner	Action
UEF	
FISKAR	
SILVA	
ASEMFO	
EOS	Responsible for implementing D6.1 and subsequent updates.
KONE	
ASFOR	

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
3	Low stakeholder engagement	Low	Medium	Communication activities will be revised and enhanced with additional partners' cooperation
2				

Estimated resources in terms of PM

PARTER	WP6 - Exploitation, dissemination and communication (EOS) - (June 23 - May 27)
	T6.2
	Jun23 - May27
CTFC	**5**
MICRO	3
BLUEB	4
OTME	2
SIMTRO	2
UNITBV	5
INNO	2
FMMF	1

TREE	1
PIVET	1
CNR	2
ARBO	0
BOSCAT	1
LAMMA	0
UEF	2.5
FISKAR	0.5
SILVA	1
ASEMFO	1
EOS	8
KONE	0.5
ASFOR	1
TOTAL	**43.5**

Health and safety

Not Applicable

Legal issues

Data protection & Image protection Authorizations needed, legal constrains of the technology or the libraries to build the models used. Non-disclosure information, things that might need protection before publishing

Reviewed by:

WP Leader: Silvia Melegari Date: 01/09/2023

Task 6.3. Communication Actions

Work package title

Exploitation, dissemination and communication

Task title

Communication Actions

Contact person and institution

Silvia Melegari, European Organisation of the Sawmill Industry (EOS), silvia.melegari@eos-oes.eu

Timeline (in months)

M01-M48

Description

A variety of editorial, promotional and visual content will be developed to share on SINTETIC channels and media multipliers. The SINTETIC website, linked to the Geodatabase (D3.1) will become a meeting place for stakeholders, researchers, data users. The website will establish links with SINTETIC social media and other relevant projects/ initiatives. To reach a large audience, a SINTETIC community on social media channels as Twitter, and LinkedIn will boost the visibility and impact of the results. The SINTETIC Project will be presented as well in meetings with the EU Commission representatives. Periodical updates (through images and re-directing links) will be uploaded on social media creating a narrative around the results of the project. A dedicated Press Release (EN/FR/RO/IT) will mark the start of the project while other Press Releases will follow for announcing milestones. Furthermore, a logo, promotional communication material (1 flyer, rollups) and templates will be developed. Through the attendance to at least 2 EU professional/technology fairs (e.g. ELMIA WOOD, AUSTROFOMA, etc.) will promote the system among forest/wood professionals

Planned workshops/events

Planned event	Expected audience	Month
Press Release launching the SINTETIC Project	Media/ Brussels's based organisations/specialised press and EU Institutions	8.06.23
SINTETIC presentation at the F-Bi meeting organised by DG GROW	Member States & EU Commission representatives, Brussels based Organisation	27.06.23
SINTETIC on LinkedIn	Social Community	09.23
SINTETIC on X (previously Twitter)	Social Community	09.23

Relevant deliverables and milestones

Deliverables:

Milestones:

Ms6.2 – SINTETIC website launched. Website accessible for external users. (All SOBJs) (M04) **(CTFC)**

Ms6.3 – SINTETIC - First Presentation EU Commission and Stakeholders (M01) **(EOS)**

Ms6.4 – SINTETIC LinkedIn page & X launched. (M04) **(EOS)**

Task timetable

Task 6.3. Communication Actions		2023					2024										2025											2026											2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	Ms6.2. SINTETIC website launched																																														
2	Ms6.3 – SINTETIC - First Presentation EU Commission and Stakeholders																																														
3	Ms6.4 – SINTETIC LinkedIn page & X launched.																																														

Roles and responsibilities

Partner	Action
EOS	
CTFC	
MiCRO	
BLUEB	
OTME	
SIMTRO	
UNITBV	
INNO	
FMMF	
TREE	
PIVET	
CNR	
ARBO	Due to budget restrictions ARBO won't declare personal costs in this work package but will contribute as the costs are included in other WPs
BOSCAT	
LAMMA	Due to budget restrictions LAMMA won't declare personal costs in this work package but will contribute as the costs are included in other WPs
UEF	
FISKAR	

Partner	Action
SILVA	
ASEMFO	
KONE	
ASFOR	

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
3	Low stakeholder engagement	Low	Medium	Communication activities will be revised and enhanced with additional partners' cooperation
2				

Estimated resources in terms of PM

PARTER	WP6 - Exploitation, dissemination and communication (EOS) - (June 23 - May 27)
	T6.3
	Jun23 - May27
CTFC	5
MICRO	3
BLUEB	2
OTME	2
SIMTRO	2
UNITBV	5
INNO	2
FMMF	1
TREE	1
PIVET	1
CNR	2

ARBO	0
BOSCAT	1
LAMMA	0
UEF	2.5
FISKAR	0.5
SILVA	1
ASEMFO	1
EOS	**8**
KONE	0.5
ASFOR	1
TOTAL	**41.5**

Health and safety

Not Applicable

Legal issues

Authorizations needed, legal constrains of the technology or the libraries to build the models used.

Reviewed by:

WP Leader: Silvia Melegari Date: 31/10/2023

Task 6.4. Exploitation plan development

Work package title

Exploitation, dissemination and communication

Task title

Exploitation plan development

Contact person and institution

Silvia Melegari, European Organisation of the Sawmill Industry (EOS), silvia.melegari@eos-oes.eu

Timeline (in months)

M1-M48

Description

This task will facilitate the uptake of SINTETIC results at the EU level, support the replication of the digital technology developed. For this purpose, it will provide several outputs:

- Policy recommendations. This subtask will analyse all the social and legal aspects related to data ownership, management and distribution in the specific case of the forest value chain and its components: forest owners (FMMF, BLUEB, BOSCAT), contractors (KONE, ASFOR, ASEMFO, SILVA) and industry (EOS, PIVET, FISKAR) will be involved to list critical issues (e.g. privacy protection of the operators in a frame of automatic data sharing of their professional activity). To do so, an online meeting will be organised with the sawmill industries representatives in order to gather views and concerns on the projects objectives. The present legal frame will be assessed in the involved countries and at EU level. The interrelation of data ownership, access rights and privacy as well as commercial interest issues will be considered. The expert opinion of all the involved professionals will be contrasted with the present situation, drafting several of policy recommendations at national and EU level (D6.10 Policy brief 1 – Privacy issues with digital data, D6.11 Policy brief 2 – Early quality assessment of timber products, D6.12 Policy brief 3 – Digitalized wood value chains addressing EUDR 16298/22). Also, a White Paper on SINTETIC contribution addressing the EUDR 1698/22 EU legislation requirements will be delivered (D6.6 in due date M18).

- Business Models. For each individual exploitable results, a suitable business model and business plan will be developed. One or more possible business plans at broader scale will be designed as well, involving the whole value chain (from forest to final wood product) and all the business partners of the project. Individual “use cases” business models will be developed addressing the whole value chain including i) the cost and revenue model for all value chain partners, ii) partnerships and iii) the identification of critical conditions for the implementation, adoption and growth (D6.7, D6.14 and D6.15 Business uptake and exploitation plans according to Initial, Mid-term and Final phases in M6, M18 andM36 respectively). This task will include an analysis of the value of the new services and data, as well as the expected additional costs (e.g. purchase and maintenance of more expensive machines by the contractors, the main data producers of the value chain), and will draft proposals for revenue distribution among the involved actors.

- IPR and Knowledge management strategies & Exploitation Plans. The IPR strategy is a key part of the exploitation strategy. Its goal is to decide what project results should be protected, explore the best ways to protect and exploit them and support the partners in exploiting the project results. In this task, the best protection strategy that fits each exploitable result will be discussed to avoid future conflicts among the partners regarding (joint) ownership, access rights and freedom to operate. SINTETIC will include an IP directory listing all IP brought in and developed by the project partners. By keeping this directory, the development of agreements on use and access rights will be facilitated. (D6.8, D6.9 IPR Knowledge management strategies updates in M6 and M36 respectively). This task will be active throughout the project by means of proactive dialogue, to ensure that agreements are achieved and boost market exploitation. This task will be coordinated with the DMP (T1.2).

Planned workshops/events

Planned event	Expected audience	Month
SINTETIC meets the sawmill industries -online	National Sawmill Associations and companies' representatives	11.09.23

Relevant deliverables and milestones

Deliverables:

D6.6. White Paper on SINTETIC contribution addressing the EUDR 16298/22 EU legislation requirements (Document, report → PU): Digitalised wood value chains: new technologies, challenges, opportunities and integration with EUDR 16298/22 EU legislation. (T6.4). (M18) **(EOS)**

D6.7. Business uptake and exploitation plan (Initial phase) (Document, report → PU): Report including the exploitation path evolving with the project. Initial phase (M1- M6): initial mapping of project results (and further definition of the KERs compared to the proposal), preliminary market analysis, and potential constrains to be addressed throughout the development of the project (T6.4). (M06) **(CNR)**

D6.8. IPR and Knowledge management strategies (1st version) (Document, report → PU): Document defining the plan approach to manage and protect the partners' intellectual property rights and knowledge management strategies. It will identify and analyse the existing and potential IPRs from each partner for each SINTETIC output. This will be used to utilise and exploit the consortium intellectual property assets (T6.4). (M06) **(CTFC)**

D6.9. IPR and Knowledge management strategies (update Final version) (Document, report → PU): Update on the IPR and Knowledge management strategies document. (T6.4). (M36) **(CTFC)**

D6.10. Policy brief 1 - Privacy issues with digital data (Document, report → PU): Privacy implications of digital data in the forest value chain and proposal of regulations applied to the specific technologies and standards (e.g. StanForD data). (T6.4). (M20) **(KONE)**

D6.11. Policy brief 2 - Early quality assessment of timber products (Document, report → PU): Early quality assessment of timber products in cooperation with DIGIMEDFOR project (T6.4, T2.1, T4.4). (M23) **(CNR)**

D6.12. Policy brief 3 - Digitalized wood value chains addressing EUDR 16298/22 (Document, report → PU): Digitalised wood value chains: new technologies, challenges, opportunities and integration with EU legislation (proposal for regulation: EUDR 16298/22). (T6.4) (M40) **(EOS)**

D6.14. Business uptake and exploitation plan (Mid phase) (Document, report → PU): Report including the exploitation path evolving with the project. Mid phase (M6-M18): market analysis and initial exploitation plan, validation of plan with stakeholders (T6.4). (M18) **(CNR)**

D6.15. Business uptake and exploitation plan (Final phase) (Document, report → PU): Report including the exploitation path evolving with the project. Final phase (M18-36): final assessment of SINTETIC exploitable results and assets, value proposition and business models (for each KERs) (T6.4). (M36) **(CNR)**

Milestones:

Task timetable

Task 6.4. Exploitation plan development		2023						2024												2025												2026												2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D6.6. White Paper on SINTETIC contribution addressing the EUDR 16298/22 EU legislation requirements																																															
2	D6.7. Business uptake and exploitation plan (Initial phase)																																															
3	D6.8. IPR and Knowledge management strategies (1st version)																																															
4	D6.9. IPR and Knowledge management strategies (update Final version)																																															
5	D6.10. Policy brief 1 - Privacy issues with digital data																																															
6	D6.11. Policy brief 2 - Early quality assessment of timber products																																															
7	D6.12. Policy brief 3 - Digitalized wood value chains addressing EUDR 16298/22																																															
8	D6.14. Business uptake and exploitation plan (Mid phase)																																															
9	6.15. Business uptake and exploitation plan (Final phase)																																															

Roles and responsibilities

Partner	Action
EOS	
CTFC	
BLUEB	
SIMTRO	
UNITBV	
INNO	
FMMF	
TREE	
PIVET	
CNR	
BOSCAT	
UEF	
FISKAR	
SILVA	
ASEMFO	
KONE	
ASFOR	

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
5	Inability to reach an agreement on the IPR results among the consortium partners	Medium	High	As part of innovation management, the coordination will devote efforts to minimize risks of IPR conflicts among partners
2				

Estimated resources in terms of PM

PARTER	WP6 - Exploitation, dissemination and communication (EOS) - (June 23 - May 27)
	T6.4
	Jun23 - May27
CTFC	4
BLUEB	2
SIMTRO	0.5
UNITBV	5
INNO	3
FMMF	2
TREE	3
PIVET	3
CNR	12
BOSCAT	3
UEF	2.5
FISKAR	2.5
SILVA	5
ASEMFO	4
EOS	**6**
KONE	3

ASFOR	9
TOTAL	**69.5**

Health and safety

Not Applicable

Legal issues

Authorizations needed, legal constrains of the technology or the libraries to build the models used. Non disclosure information, things that might be protected before publishing…

Reviewed by:

WP Leader: Silvia Melegari Date: 01/09/2023

WP7 – Scientific coordination and project management.

…

Task 7.1. Technical, financial and administrative coordination

Work package title

Scientific coordination and project management

Task title

Technical, financial and administrative coordination

Contact person and institution

Antonio Ruano, Consorci Centre de Ciencia i Tecnologia Forestal de Catalunya (CTFC) antonio.ruano@ctfc.cat

Timeline (in months)

M01-M48

Description

This task will ensure the optimal technical, financial, and administrative coordination and monitoring of the SINTETIC project, establishing the project internal management structure, consisting of the Project Coordination Unit (PCU) and the Project Management Team (PMT).

The PCU will be formed by CTFC coordination personnel: Scientific Coordinator (SC), Project Deputy Coordinator (DC) and Project Manager (PM). PCU will be the ultimate responsible body to coordinate the overall

progress of the project, ensure the project results, elaborate and send the progress reports and act as the link between the consortium and the European Commission (EC). It will organise the General Assemblies, will manage the Advisory Board (AB), will validate the Communication and dissemination Plan and the Data Management Plan. In addition, PCU will be in charge of the appropriate implementation of the Multi-Actor Approach across the project.

The PMT will be formed by the PCU and the Work Package Leaders (WPL). The PMT will be the responsible of the technical decision tacking, including the review validation of technical documents, coordination of scientific publications, and supervision of the innovative SINTETIC approaches and prototypes, and impact assessment. PMT will also coordinate the overall technical tasks implementation and provide criteria provision, suggesting changes on technical and financial aspects when required as well as possible solutions. PMT will be also ensure the implementation of Responsible Research and Innovation principles across the different project activities, particularly concerning gender equality, ethics and integrity.

Task 7.1 will include the preparation, organisation and chairing of in-person/hybrid project coordination meetings with all partners (Interim Meetings, IM) and project review meetings (WPL + external reviewers + project officer) to discuss the current development of the project: Kick-off meeting in Spain (M1), 1st Interim Meeting in Romania (M12), 2nd IM in Slovenia (M21) in conjunction with the 1st review meeting, 3rd IM in Italy (M31), 2nd review meeting in France (M39), contribution to the Final meeting-FM in Brussels (M48), in conjunction with the Final Conference and the final review meeting.

On an annual basis, the AB will meet to steer the development of the project and provide recommendations to improve the project impacts and processes.

CTFC, with contribution from all partners, will lead the joint development of the Project Management Plan (PMP) (D7.1) as a guidance document including all the procedures needed for the optimal project management. Among others, it will include the a) organisational project management structure, b) management and quality principles, ethics and gender equality, c) precise description, budget allocation and responsibilities of tasks (and subtasks when relevant), d) Risk and Contingency Plan with a conflict resolution procedure, e) project technical coordination, monitoring, and reporting system.

Planned workshops/events

Planned event	Expected audience	Month
Yearly General Assembly meetings + Consortium meetings	All consortium partners	12 (May 24) 21(Feb 25) 31(Dec 25) 48 (May 27)

Relevant deliverables and milestones

Deliverables:

D7.1. Project management plan (Document, report → PU): Document with all the management rules and duties of the consortium for a smooth operational management revised by all partners. (T7.1 and T7.2). (M05) **(CTFC)**

Milestones:

Ms7.1 – PCU, PMT, and AB created: Minutes of the first General Assembly with the groups created and information included in the Project Management Plan. (All SOBJs). (M02) **(CTFC)**

Ms7.2 – Project Management Plan created: Project Management Plan created and distributed among all the partners. (All SOBJs). (M04) **(CTFC)**

Ms7.3 – First General Assembly celebrated: Minutes from the assembly created and distributed among all the partners. (All SOBJs). (M02) **(CTFC)**

Ms7.4 – Closure Assembly celebrated: Minutes from the assembly created and distributed among all the partners. (All SOBJs). (M48) **(CTFC)**

Task timetable

Task 7.1. Technical, financial and administrative coordination		2023						2024												2025												2026												2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D7.1. Project management plan																																															
2	Ms7.1. PCU, PMT, and AB created																																															
3	Ms7.2. Project Management Plan created																																															
4	Ms7.3. First General Assembly celebrated																																															
5	Ms7.4. Closure Assembly celebrated																																															

Roles and responsibilities

Partner	Action
CTFC	Overall coordination of the WP and Task as well as acting as the technical financial and administrative coordinator of the Consortium. It will coordinate the interaction with the Advisory Group and with the project officer. Involved as member of the Project Management Team, representing the Project Coordinator Unit and WP7 leader. In charge of the organization of an Interim meeting.
MiCRO	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings). Moreover, all partners contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments.
BLUEB	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings). Moreover, all partners contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments.
OTME	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings). Moreover, all partners contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments.
SIMTRO	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings). Moreover, all partners contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments.
UNITBV	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings). Moreover, all partners contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments. In charge of the organization of an Interim meeting.
INNO	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings). Moreover, all partners contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments. Involved as member of the Project Management Team. In charge of the organization of an Interim meeting.
FMMF	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings). Moreover, all partners contribute to the

Partner	Action
	overall impact assessment by gathering relevant KPI data from their demos and processes developments.
TREE	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings). Moreover, all partners contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments. Involved as member of the Project Management Team.
PIVET	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings). Moreover, all partners contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments.
CNR	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings). Moreover, all partners contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments. Involved as member of the Project Management Team. In charge of the organization of an Interim meeting.
ARBO	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings). Moreover, all partners contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments.
BOSCAT	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings). Moreover, all partners contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments.
LAMMA	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings). Moreover, all partners contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments. Involved as member of the Project Management Team.
UEF	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings). Moreover, all partners contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments. Involved as member of the Project Management Team.
FISKAR	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings). Moreover, all partners contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments.
SILVA	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings). Moreover, all partners contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments.
ASEMFO	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings). Moreover, all partners contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments.
EOS	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings). Moreover, all partners contribute to the

Partner	Action
	overall impact assessment by gathering relevant KPI data from their demos and processes developments. In charge of the organization of an Interim meeting.
KONE	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings). Moreover, all partners contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments.
ASFOR	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings). Moreover, all partners contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments.

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
6	A partner leaves the project or underperforms technically or financially	Low	High	Two options will be considered: a) substitution of the partner with a similar profile b) reallocation of resources and tasks among the partners to assume the leaving partner's responsibilities
7	Do NO Significant Harm (DNSH) principle is breached	Low	High	All partners will be informed and comply with rules. If significant harm is caused, the partner could be removed form project

Estimated resources in terms of PM

PARTER	WP7 - Scientific management and project coordination (CTFC) (June 23 - May 27)
	T7.1
	Jun23 - May27
CTFC	**48**
MICRO	1
BLUEB	1
OTME	2
SIMTRO	1
UNITBV	1

INNO	1
FMMF	1
TREE	1
PIVET	0.25
CNR	1
ARBO	0.25
BOSCAT	0.25
LAMMA	0.25
UEF	1
FISKAR	0.25
SILVA	0.25
ASEMFO	1
EOS	0.25
KONE	0.25
ASFOR	0.25
TOTAL	**62.25**

Health and safety

Not Applicable

Legal issues

Personnel Contacts from the consortium and personnel time registrations for the timesheets

Reviewed by:

WP Leader: Antonio Ruano Date: 18/08/2023

Task 7.2. Project quality control and reporting

Work package title

Scientific coordination and project management

Task title

Project quality control and reporting

Contact person and institution

Arnau Picó, Consorci Centre de Ciencia i Tecnologia Forestal de Catalunya (CTFC) arnau.pico@ctfc.cat

Timeline (in months)

M01-M48

Description

This task will ensure the quality of the proposed deliverables, methodology and approaches undertook along the SINTETIC project.

The PCU and the PMT will ensure the timely completion from all partners to keep track on the development activities. This will include the timely elaboration of the deliverables, milestones accomplishment and periodic reports, with its internal quality control (peer-review across partners) for all major publications and products.

The feedback from the EC will be used by the PMT to improve the practices and procedures, avoid further deviations from partners and keep the quality of results as established in the Grant Agreement.

The quality control and reporting guidelines and protocols will be added at the project management plan.

Planned workshops/events

Planned event	Expected audience	Month
First interim report	All partners	06 (Nov 23)
Second interim report	All partners	12 (May 24)
Third interim report	All partners	18 (Nov 24)
Fourth interim report	All partners	24 (May 25)
Fifth interim report	All partners	30 (Nov 25)
Sixth interim report	All partners	36 (May 26)

Relevant deliverables and milestones

Deliverables:

Milestones:

Ms7.5 – Internal quality control methodology: Internal quality control methodology created and distributed among all the partners. (All SOBJs). (M04)

Task timetable

Task 7.2. Project quality control and reporting		2023						2024												2025												2026												2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	Ms7.5. Internal quality control methodology																																															

Roles and responsibilities

Partner	Action
CTFC	Overall coordination of the WP and Task as well as acting as the technical financial and administrative coordinator of the Consortium. In charge of the coordination of the periodic reporting, continuous reporting and interim reporting together with the data submission required by the European Commission.
MiCRO	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings).
BLUEB	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings).
OTME	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings).
SIMTRO	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings).
UNITBV	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings).
INNO	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings).
FMMF	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings).
TREE	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings).
PIVET	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings).
CNR	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings).
ARBO	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings).
BOSCAT	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings).
LAMMA	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings).
UEF	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings).
FISKAR	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings).
SILVA	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings).

Partner	Action
ASEMFO	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings).
EOS	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings).
KONE	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings).
ASFOR	Participate through their regular technical, administrative and economic monitoring as well as the project coordination meetings (annual meetings).

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
6	A partner leaves the project or underperforms technically or financially	Low	High	Two options will be considered in case a partners withdraw from the consortium: a) substitution of the partner with a similar profile b) reallocation of resources and tasks among the partners to assume the leaving partner's responsibilities Underperforming will be mitigated thought he regular monitoring of the partners progress at the interim reports (Every 6 months). Monthly updates through Project Management Teams meetings.

Estimated resources in terms of PM

PARTER	WP7 - Scientific management and project coordination (CTFC) (June 23 - May 27)
	T7.2
	Jun23 - May27
CTFC	**8**
MICRO	1
BLUEB	0.5
OTME	1
SIMTRO	1
UNITBV	1

INNO	1
FMMF	1
TREE	0.5
PIVET	0.25
CNR	1
ARBO	0.25
BOSCAT	0.25
LAMMA	0.25
UEF	1
FISKAR	0.25
SILVA	0.25
ASEMFO	0.25
EOS	0.25
KONE	0.25
ASFOR	0.25
TOTAL	**19.5**

Health and safety

Not Applicable

Legal issues

Personnel Contacts from the consortium and personnel time registrations.

Reviewed by:

WP Leader: Antonio Ruano Date: 19/08/2023

Task 7.3. Impact assessment

Work package title

Scientific coordination and project management

Task title

Impact assessment

Contact person and institution

Arnau Picó, Consorci Centre de Ciencia i Tecnologia Forestal de Catalunya (CTFC) arnau.pico@ctfc.cat

Timeline (in months)

M01-M48

Description

This task will develop a protocol for impact assessment to assess the economic, social and environmental outcomes of the project, operationalising the KPI (D7.2). This will be done by WP Leaders through a self-assessment evaluation protocol of the works already done and the expected post-project impacts. This also will be used to provide operational feedback and to elaborate the policy recommendations.

Planned workshops/events

Planned event	Expected audience	Month

Relevant deliverables and milestones

Deliverables:

D7.2. Protocol for impact assessment of the economic, social and environmental outcomes of the project (Document, report → PU): A set of indicators will be developed encompassing key economic, social and environmental variables of the improved digitalisation along the forest value chain. The methodology to evaluate the project impacts will be based on qualitative and quantitative data collection and analytical approaches. Project KPI, economic benefits accrued due to the innovations developed, acceptance by market operators, environmental benefits, etc. The protocol will be validated with the partners, who will be collecting data in their different demo-sites and WP activities. (T7.3). (M16) **(CTFC)**

Milestones:

Ms7.6 – Achieved impacts internal report: Internal report of achieved impacts. (All SOBJs). (M47) **(CTFC)**

Task timetable

Task 7.3. Impact assessment		2023						2024												2025												2026												2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D7.2. Protocol for impact assessment of the economic, social and environmental outcomes of the project																																															
2	Ms7.6. Achieved impacts internal report																																															

Roles and responsibilities

Partner	Action
CTFC	Overall coordination of the WP and Task as well as acting as the technical financial and administrative coordinator of the Consortium.
MiCRO	Contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments.
BLUEB	Contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments
OTME	Contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments
SIMTRO	Contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments
UNITBV	Contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments
INNO	Contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments
FMMF	Contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments
TREE	Contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments
PIVET	Contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments
CNR	Contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments
ARBO	Contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments
BOSCAT	Contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments
LAMMA	Contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments

Partner	Action
UEF	Contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments
FISKAR	Contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments
SILVA	Contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments
ASEMFO	Contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments
EOS	Contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments
KONE	Contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments
ASFOR	Contribute to the overall impact assessment by gathering relevant KPI data from their demos and processes developments

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
1	People not answering questionnaire	Medium	Low	Agile questionnaires and large range of contacted people/companies to ensure representative results
2	Low impact of the policy recommendations developed	Medium	High	Collaborate with other projects and contact with a high variety of stakeholders since the beginning of the project.

Estimated resources in terms of PM

PARTER	WP7 - Scientific management and project coordination (CTFC) (June 23 - May 27)
	T7.3
	Jun23 - May27
CTFC	**3**
MICRO	0.5
BLUEB	0.25

OTME	0.5
SIMTRO	0.5
UNITBV	0.5
INNO	0.5
FMMF	1
TREE	1
PIVET	0.25
CNR	1
ARBO	0.25
BOSCAT	0.25
LAMMA	0.25
UEF	1
FISKAR	0.25
SILVA	0.25
ASEMFO	0.25
EOS	0.25
KONE	0.25
ASFOR	0.25
TOTAL	**12.25**

Health and safety

Not Applicable

Legal issues

Personnel Contacts from the consortium and stakeholders involved. Internal economic information from companies/ landholders.

Reviewed by:

WP Leader: Arnau Picó Date: 19/08/2023

Task 7.4. Cooperation with other selected projects under this topic and other relevant projects

Work package title

Scientific coordination and project management

Task title

Cooperation with other selected projects under this topic and other relevant projects

Contact person and institution

Antonio Ruano, Consorci Centre de Ciencia i Tecnologia Forestal de Catalunya (CTFC), antonio.ruano@ctfc.cat

Timeline (in months)

M1-M48

Description

This task will establish active cooperation with other selected projects under the call HORIZON-CL6-2022-CIRCBIO-02-06 and other relevant projects funded at the EU or national level (active projects in table 1.2.5). This data sharing and knowledge creation will increase the replicability dimension during and beyond the project implementation period, establishing permanent links with the different stakeholders sectors (sawmills, EU forest contractors and workers, research centres, universities and schools, forest owners, and technology providers and developers). Together will allow the cross-participation in sectorial events and workshops, up taking past initiatives to the new EU scenarios. To achieve such goals SINTETIC will: 1- Develop a Joint Policy Brief at M23 “Early quality assessment of timber products” (cooperation with DIGIMEDFOR); 2- Organize a joint dissemination event in the Demo site of FMMF (cooperation with DIGIMEDFOR). 3- Present the planned activity on LiDAR technology at a forthcoming meeting of the COST action 3DForEcoTech and discuss the possible synergies and suggestions for common developments (cooperation with 3DForEcoTech); 4- Establish a collaboration between UNITE flagship project and SINTETIC in the common fields (LiDAR, forecast of forest damages, digitalization of the value chain); 5- Plan and perform common activities in the fields of citizen science support (assessment of fuel load), multisource data fusion and digital forest inventory in the frame of T4.2 in the demos planned in Italy and/or Spain (cooperation with SINTETIC). The tasks results will be included at each update of the Communication and dissemination plan accordingly (D6.1, D6.2 and D6.13).

Planned workshops/events

Planned event	Expected audience	Month
Joint dissemination event in the Demo site of FMMF with DiGIMEDFOR	Stakeholders involved in the Demo site	To be determined
Present the planned activity on LiDAR technology at a	All attendees	To be determined

Planned event	Expected audience	Month
forthcoming meeting of the COST action 3DForEcoTech		
Collaboration between UNITE flagship project (LiDAR, forecast of forest damages, digitalization of the value chain)		To be determined
Perform common activities in the fields of citizen science support (assessment of fuel load), multisource data fusion and digital forest inventory in the demos planned in Italy and/or Spain (cooperation with FIRE-RES)	All attendees	To be determined

Relevant deliverables and milestones

Deliverables:

D6.1. Communication and dissemination plan (update 1st Interim Report) (Document, report → PU): Detailed plan reporting the communication actions and dissemination strategy, outlining the strategic objectives, individual responsibilities, target groups, timeline, guidelines, methods, tools, channels, and indicators to monitor the progress. (T6.2). It also will include the progress and results of the cooperation with other selected projects (T7.4). (M06) **(CTFC)**

D6.2. Communication and dissemination plan (update 2nd Interim Report) (Document, report → PU): Update on the Communication and dissemination plan in collaboration with partners, where the Demos will provide the first data and visibility. (T6.2). It also will include the progress and results of the cooperation with other selected projects (T7.4). (M36) **(CTFC)**

D6.13. Communication and dissemination plan (update Final Report) (Document, report → PU): Update on the Communication and dissemination plan in collaboration with partners, where the Demos will provide the first data and visibility. (T6.2). It also will include the progress and results of the cooperation with other selected projects (T7.4). (M48) **(CTFC)**

Milestones:

Ms7.7 – Cooperation with other selected projects: Proof document including the common meetings/ actions done between SINTETIC and other projects. (SOBJ7). (M48) **(CTFC)**

Task timetable

Task 7.4. Cooperation with other selected projects under this topic and other relevant projects		2023						2024												2025												2026												2027				
Number	Activity, Deliverable or Milestone	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	D6.1. Communication and dissemination plan (update 1st Interim Report) (Cooperation part with other projects)																																															
2	D6.2. Communication and dissemination plan (update 2nd Interim Report) (Cooperation part with other projects)																																															
3	D6.13. Communication and dissemination plan (update Final Report) (Cooperation part with other projects)																																															
5	Ms7.7. Cooperation with other selected projects																																															

Roles and responsibilities

Partner	Action
CTFC	Overall coordination of the WP and Task as well as acting as the technical financial and administrative coordinator of the Consortium
MiCRO	Provide support for the Cooperations as well as provide the maximum dissemination through linking SINTETIC to stakeholders and support the organization for the cross-participation in sectorial events and workshops.
BLUEB	Provide support for the Cooperations as well as provide the maximum dissemination through linking SINTETIC to stakeholders and support the organization for the cross-participation in sectorial events and workshops.
OTME	Provide support for the Cooperations as well as provide the maximum dissemination through linking SINTETIC to stakeholders and support the organization for the cross-participation in sectorial events and workshops.
SIMTRO	Provide support for the Cooperations as well as provide the maximum dissemination through linking SINTETIC to stakeholders and support the organization for the cross-participation in sectorial events and workshops.
UNITBV	Provide support for the Cooperations as well as provide the maximum dissemination through linking SINTETIC to stakeholders and support the organization for the cross-participation in sectorial events and workshops.
INNO	Provide support for the Cooperations as well as provide the maximum dissemination through linking SINTETIC to stakeholders and support the organization for the cross-participation in sectorial events and workshops.
FMMF	Provide support for the Cooperations as well as provide the maximum dissemination through linking SINTETIC to stakeholders and support the organization for the cross-participation in sectorial events and workshops.
TREE	Provide support for the Cooperations as well as provide the maximum dissemination through linking SINTETIC to stakeholders and support the organization for the cross-participation in sectorial events and workshops.
PIVET	Provide support for the Cooperations as well as provide the maximum dissemination through linking SINTETIC to stakeholders and support the organization for the cross-participation in sectorial events and workshops.

Partner	Action
CNR	Provide support for the Cooperations as well as provide the maximum dissemination through linking SINTETIC to stakeholders and support the organization for the cross-participation in sectorial events and workshops.
ARBO	Provide support for the Cooperations as well as provide the maximum dissemination through linking SINTETIC to stakeholders and support the organization for the cross-participation in sectorial events and workshops.
BOSCAT	Provide support for the Cooperations as well as provide the maximum dissemination through linking SINTETIC to stakeholders and support the organization for the cross-participation in sectorial events and workshops.
LAMMA	Provide support for the Cooperations as well as provide the maximum dissemination through linking SINTETIC to stakeholders and support the organization for the cross-participation in sectorial events and workshops.
UEF	Provide support for the Cooperations as well as provide the maximum dissemination through linking SINTETIC to stakeholders and support the organization for the cross-participation in sectorial events and workshops.
FISKAR	Provide support for the Cooperations as well as provide the maximum dissemination through linking SINTETIC to stakeholders and support the organization for the cross-participation in sectorial events and workshops.
SILVA	Provide support for the Cooperations as well as provide the maximum dissemination through linking SINTETIC to stakeholders and support the organization for the cross-participation in sectorial events and workshops.
ASEMFO	Provide support for the Cooperations as well as provide the maximum dissemination through linking SINTETIC to stakeholders and support the organization for the cross-participation in sectorial events and workshops.
EOS	Provide support for the Cooperations as well as provide the maximum dissemination through linking SINTETIC to stakeholders and support the organization for the cross-participation in sectorial events and workshops.
KONE	Provide support for the Cooperations as well as provide the maximum dissemination through linking SINTETIC to stakeholders and support the organization for the cross-participation in sectorial events and workshops.
ASFOR	Provide support for the Cooperations as well as provide the maximum dissemination through linking SINTETIC to stakeholders and support the organization for the cross-participation in sectorial events and workshops.

Risks

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
1	Other selected projects not interested/ not available	Low	Medium	The selected projects for the cooperation have the obligation/budget to participate in such events. Events focused on Scientific/Technical field related to increase the interest for the expert communities .

Risk No.	Risk	Likelihood	Impact	Avoid/Mitigate
2	Another pandemic	Low	High	Digital Cooperation and meetings

Estimated resources in terms of PM

PARTER	WP7 - Scientific management and project coordination (CTFC) (June 23 - May 27)
	T7.4
	Jun23 - May27
CTFC	**4**
MICRO	0.5
BLUEB	0.25
OTME	0.5
SIMTRO	0.5
UNITBV	0.5
INNO	0.5
FMMF	1
TREE	0.5
PIVET	0.25
CNR	2
ARBO	0.25
BOSCAT	0.25
LAMMA	0.25
UEF	1
FISKAR	0.25
SILVA	0.25
ASEMFO	0.5
EOS	0.25

KONE	0.25
ASFOR	0.25
TOTAL	**14**

Health and safety

Not Applicable

Legal issues

Personnel Contacts from the consortium and stakeholders involved. Internal economic information from companies/ landholders.

Reviewed by:

WP Leader: Arnau Picó Date: 19/08/2023

Annex II: Deliverables, Milestones and Demonstration sites

In this Annex a review of the Deliverables, Milestones and Demonstration sites with their Lead beneficiaries and the due date of each one of them.

Deliverables

Table 8 List of SINTETIC Deliverables

Deliverable Nº	Deliverable Name	Lead Beneficiary	Due date
D1.1	System Requirements of the overall system and the specific users (data and interfaces)	UEF	30/11/2023
D1.2	Data Management Plan (1st version)	CNR	30/11/2023
D1.3	Data Management Plan (2nd version)	CNR	30/09/2025
D1.4	Data Management Plan (final version)	CNR	30/11/2026
D1.5	Geospatial and platform data model, conceptual scheme	LAMMA	31/03/2024
D2.1	Prototypes development report detailing the technical characteristics and pre-test results of the prototypes (hardware and software)	INNO	31/05/2025
D2.2	Report detailing the operative feedback from demos and the upgrades done accordingly on the prototypes	INNO	31/05/2026
D2.3	Marking and tracking system for trees and timber products	OTME	30/09/2024
D2.4	Smartphone-APP for timber measuring, grading and tracking	TREE	30/11/2024
D2.5	Web APP to process and report forest inventory information (ForestHQ)	TREE	31/05/2025
D2.6	Prototype of forest harvester with tracking functions and quality sensors	OTME	30/11/2024
D2.7	Quality assessment and traceability systems in sawmill	MiCRO	31/05/2025
D3.1	Geodatabase of all data and metadata provided by sensors and forest machinery	CNR	30/11/2024
D3.2	Data procedures and algorithms to services, source code	CNR	31/05/2025
D3.3	The SINTETIC platform GUI	TREE	31/05/2026
D4.1	Demonstration plan of all the planned demos	CNR	31/07/2025
D4.2	Integrated web platforms and portable digital tools to enhance forest management of fragmented forests	BLUEB	31/05/2026
D4.3	Testing and evaluating the developed prototypes and technologies (harvester, smartphone app, sawmill sensors, etc.)	UNITBV	31/05/2026

Nº Deliverable	Deliverable Name	Lead Beneficiary	Due date
D4.4	Final report of all demos listing scientific and dissemination results	UNITBV	28/02/2027
D4.5	Mobile application for inventory and traceability	TREE	31/05/2026
D5.1	Wood quality models relating timber properties with stand and process data	UEF	31/05/2026
D5.2	Terrestrial laser scanning inventory of standing trees for stand health assessment and for tree optimal bucking	UEF	31/05/2026
D5.3	Satellite alert system against illegal logging	CNR	31/05/2026
D5.4	Economic and technical assessment of the implementation of SINTETIC technologies developed (harvester, smartphone APP, portable sensors)	UNITBV	30/09/2026
D5.5	Terrestrial laser scanning inventory of standing trees for stand heath assessment and for tree optimal bucking (Final version)	UEF	31/05/2027
D5.6	Satellite alert system against illegal logging (Final version)	CNR	31/05/2027
D6.1	Communication and dissemination plan (update 1st Interim Report)	CTFC	30/11/2023
D6.2	Communication and dissemination plan (update 2nd Interim Report)	CTFC	31/05/2026
D6.3	Practice abstract - batch 1	CNR	30/04/2025
D6.4	Practice abstract - batch 2	CNR	31/03/2027
D6.5	Training to digitalization of forest operators	CTFC	31/12/2026
D6.6	White Paper on SINTETIC contribution addressing the EUDR 16298/22 EU legislation requirements	EOS	30/11/2024
D6.7	Business uptake and exploitation plan (Initial phase)	CNR	30/11/2023
D6.8	IPR and Knowledge management strategies (1st version)	CTFC	30/11/2023
D6.9	IPR and Knowledge management strategies (update Final version)	CTFC	31/05/2026
D6.10	Policy brief 1 - Privacy issues with digital data	KONE	31/01/2025
D6.11	Policy brief 2 - Early quality assessment of timber products	CNR	30/04/2025
D6.12	Policy brief 3 - Digitalized wood value chains addressing EUDR 16298/22	EOS	30/09/2026
D6.13	Communication and dissemination plan (update Final Report)	CTFC	31/05/2027
D6.14	Business uptake and exploitation plan (Mid phase)	CNR	30/11/2024
D6.15	Business uptake and exploitation plan (Final phase)	CNR	31/05/2026

Deliverable Nº	Deliverable Name	Lead Beneficiary	Due date
D7.1	Project management plan	CTFC	31/10/2023
D7.2	Protocol for impact assessment of the economic, social and environmental outcomes of the project	CTFC	30/09/2024

Milestones

Table 9 List of SINTETIC Milestones

Ms. Nr.	Milestone Name	Lead Benef.	Related WP	Due date	Means of verification
Ms1.1	Data flow diagram created	LAMMA	**WP1**	31/01/2024	Geospatial, flow, platform data model formalised by UML schemas. (SOBJ7)
Ms2.1	Supply chain prototypes active	OTME	**WP2**	30/09/2024	Images or video of the first release of each prototype of deliverables 2.1, 2.2 and 2.3. (SOBJ2)
Ms2.2	Smartphone-APP prototype	ARBO	**WP2**	30/09/2024	Images or video of the first release of the prototype of D2.4. (SOBJ1).
Ms2.3	Forest harvester prototype	OTME	**WP2**	30/09/2024	Images or video of the first release of the prototype of D2.5. (SOBJ3).
Ms2.4	Sawmill prototype operative	MiCRO	**WP2**	31/03/2025	Images or video of the first release of the prototype of D2.6. (SOBJ3).
Ms3.1	Geodatabase Online Availability	CNR	**WP3**	30/09/2024	Available online geodatabase, related to D3.1. (SOBJ1).
Ms3.2	Geodatabase Evaluation Completion	CNR	**WP3**	28/02/2025	Geodatabase existence and integrity verification (instances, relationships, constraints). (SOBJ1)
Ms3.3	Open-source platform operative	LAMMA	**WP3**	28/02/2025	Accessible to reviewers with credentials provided upon request. (SOBJ2).
Ms3.4	SINTETIC platform GUI (alpha release)	TREE	**WP3**	30/11/2025	Accessible platform
Ms3.5	SINTETIC platform GUI (beta release)	TREE	**WP3**	31/05/2026	Accessible platform
Ms4.1	First successful demo	CNR	**WP4**	31/05/2025	Dataset reporting the data collected and transmitted during the demo publicly available on the Geodatabase. (SOBJ7).

Ms. Nr.	Milestone Name	Lead Benef.	Related WP	Due date	Means of verification
Ms4.2	Timber product certification	BLUEB	**WP4**	31/07/2026	Application demonstrated and carried on in practice in Demo8 and reported in Deliverable 4.4. (SOBJ2).
Ms4.3	Internal Demo Reports	UNITBV	**WP4**	31/07/2025	Proofs of internal reports. (SOBJ5).
Ms4.4	Mobile application for inventory and traceability prototype review	BLUEB	**WP4**	31/07/2026	Short report about its functionality
Ms5.1	Wood Quality modelling	UEF	**WP5**	30/09/2025	Available wood quality (WQ) predictive models for the main forest species, linked to forest management and stand variables. (SOBJ2).
Ms5.2	TLS data	UEF	**WP5**	30/11/2025	Processed data of remaining trees is available and suitable for modelling. (SOBJ5).
Ms5.3	Illegal logging alert	CNR	**WP5**	30/11/2025	The illegal logging alert system detects illegal logging and properly discriminates from other disturbances
Ms6.1	Training to digitalization	FMMF	**WP6**	31/01/2026	Proposal of integration of the training format sent to the attention of the general assembly of EFESC. (SOBJ7).
Ms6.2	SINTETIC website launched	CTFC	**WP6**	30/09/2023	Website accessible for external users. (All SOBJs)
Ms6.3	First Presentation EU Commission and Stakeholders	EOS	**WP6**	30/06/2023	
Ms6.4	SINTETIC LinkedIn page & X launched	EOS	**WP6**	30/09/2023	Accessible on-line
Ms7.1	PCU, PMT, and AB created	CTFC	**WP7**	31/07/2023	Minutes of the first General Assembly with the groups created and information included in the Project Management Plan. (All SOBJs).
Ms7.2	Project Management Plan created	CTFC	**WP7**	30/09/2023	Project Management Plan created and distributed among all the partners. (All SOBJs).
Ms7.3	First General Assembly celebrated	CTFC	**WP7**	31/07/2023	Minutes from the assembly created and distributed among all the partners. (All SOBJs)

Ms. Nr.	Milestone Name	Lead Benef.	Related WP	Due date	Means of verification
Ms7.4	Closure Assembly celebrated	CTFC	**WP7**	31/05/2027	Minutes from the assembly created and distributed among all the partners. (All SOBJs).
Ms7.5	Internal quality control methodology	CTFC	**WP7**	30/09/2023	Internal quality control methodology created and distributed among all the partners. (All SOBJs).
Ms7.6	Achieved impacts internal report	CTFC	**WP7**	30/04/2027	Internal report of achieved impacts. (All SOBJs).
Ms7.7	Cooperation with other selected projects	CTFC	**WP7**	31/05/2027	Proof document including the common meetings/ actions done between SINTETIC and other projects. (SOBJ7).

Demonstration sites

Table 10 List of SINTETIC Demonstration sites

Demonstration sites (DEMO)	Partner	Description
DEMO1-Italy	BLUEB	The demo will show the synergy between the Forest Sharing platform, designed to aggregate and manage fragmented forests, and the SINTETIC platform and its digital tools. It will also feature the practical application of some additional features such as a citizen science example (to monitor fuel load in forest). BLUEB will integrate the SINTETIC and Forest-Sharing platforms, demonstrating the increased potential for the valorisation of fragmented forest. BLUEB will also use the digital data and tracking system to certificate the local-timber brand of FMMF. CNR will provide scientific supervision.
DEM02-Spain	BLUEB	Based on the experience of the former demo, this activity will demonstrate in a new country/setting the combined potential of the Forest Sharing platform, designed to aggregate and manage fragmented forests, and the SINTETIC platform and its digital tools.
DEMO3-Finland	UEF, KONE	This will be the first demo to deploy in the operational environment the prototype system designed for the high level of mechanization (Geodatabase platform D3.1and prototype harvester D2.5). Thus, even if the work planned in WP2 includes validation of the harvester, this demo is regarded as intermediate between system development and public demonstration. UEF will lead this action due to the experimental content still needed at this stage.
DEMO4-Romania	ASFOR	The demo will feature an improved prototype system (platform and machines), upgraded according to the results of Demo1 (if necessary). SILVA will provide the forest stand and logistics assistance. UNITBV the scientific supervision.

Demonstration sites (DEMO)	Partner	Description
DEMO5-Transtrand, Sweden	FISKAR	Under the lead of the industrial partner, this demo will include the forest procurement as well as the industrial transformation, process optimization and the continuity of the traceability system to sawn wood. Due to the importance of this demo for data feeding to Tasks 5.1 and 5.2, the minimum number of trees harvested will be 1,000. FISKAR will provide the stand to be harvested and the logistics support through its network of timber providers. The value of the timber harvested by OTME will compensate the service. MICRO will run the sawn wood traceability. UEF will provide scientific supervision.
DEMO6-Vendé, France	PIVET	This will be the final demo, featuring the system in its maximum level of improvement after several cycles of upgrading (if required). Also in this case, the minimum number of trees felled and processed will be increased to 1,000, providing to the sawmill about 3,000 logs for sensor scanning. PIVET will provide the stand to be harvested and the logistics support through its network of timber providers. The value of the timber harvested by OTME will compensate the service. MICRO will run the sawn wood traceability. CTFC will provide scientific supervision.
DEMO7-Barcelona, Spain	BOSCAT	This demo will feature the manual system deployed both for forest inventory and to implement the platform with the forest value chain data. Forest stands and operators will be provided by BOSCAT. CTFC will provide scientific supervision.
DEMO8-Finland	UEF	This Demo will focus on the integration of small-scale systems in the frame of and industrial and mainly mechanized forest value chain. The manual instruments (Task 2.1 and 2.2) will be used for forest inventory, value recovery, products traceability and early quality assessment. UEF will provide scientific supervision and the forest stand concurrently with the organization of a professional training for forest operators.
DEMO9-Romania	ASFOR	This Demo will feature a similar layout and the same roles for SILVA and UEF as in Demo 2. The manual instruments (Task 2.1 and 2.2) will be used for forest inventory, value recovery, products traceability and early quality assessment. Additionally, they will be used for close-to-real-time harvest monitoring (linked with Task 5.3). Additionally, marked roundwood will be tracked up to the end user facility, demonstrating the traceability system to certify precise product provenance (geolocate).
DEMO10-Florence, Italy	FMMF	Along with the forest inventory, value recovery, products traceability and early quality assessment with manual systems this Demo will contribute to develop the training format in this Demo, FMMF will provide the forest stands and workforce. Additionally, this partner will demonstrate the use of the manual digital tools for forest inventory, value recovery, products traceability and early quality assessment. The same activity will further develop the training format (EFESC standard).

For more information regarding the demonstration sites, please see Table 1.2.3 from the Grant Agreement.

Annex III: Risk Register

SINTETIC Critical risks for implementation

Risk nº	Risk	Likelihood	Impact	Avoid/Mitigate	WP1	WP2	WP3	WP4	WP5	WP6	WP7
1	Delays in the development of prototypes	Medium	High	An “early warning” system to resolve risks as part of project management plan (D7.1) Demonstrations will start with the first system completed (manual or mechanical) as their use is independent		T2.1 T2.2 T2.3		T4.1 T4.2			
2	Prototypes/adaptations do not perform as expected in terms of precision, reliability and/or robustness	Medium	High	The reiterate feedback from each demo, followed by system repair/improvement will allow to gradually solve this issue		T2.1 T2.2 T2.3 T2.4		T4.1 T4.2			
3	Low stakeholder engagement	Low	Medium	Communication activities will be revised and enhanced with additional partners’ cooperation				T4.2 T4.3		T6.1 T6.2 T6.3	
4	Data not adequate to build the planned models	Low	High	The sequence of Demos will allow to intensify the data collection and adjust the test plan in the latest field activities in order to collect the required data for modelling				T4.2 T4.3	T5.1 T5.2 T5.3		
5	Inability to reach an agreement on the IPR results among the consortium partners	Medium	High	As part of innovation management, the coordination will devote efforts to minimize risks of IPR conflicts among partners						T6.4	

Risk nº	Risk	Likelihood	Impact	Avoid/Mitigate	WP1	WP2	WP3	WP4	WP5	WP6	WP7
6	A partner leaves the project or underperforms technically or financially	Low	High	Two options will be considered: a) substitution of the partner with a similar profile b) reallocation of resources and tasks among the partners to assume the leaving partner's responsibilities							T7.1
7	Do NO Significant Harm (DNSH) principle is breached	Medium	High	All partners will be informed and comply with rules. If significant harm is caused, the partner could be removed form project							T7.1
8	People do not answer the questionnaire	Medium	Low	Sending reminders. Agile questionnaires and large range of contacted people/companies to ensure representative results	T1.1						T7.3
9	External sensors do not offer API:s that could be used for integration to the smartphone app	Medium	Medium	Choose sensors that offers API:s. If no API:s is offered an optical reader will be implemented in the smart phone app to transfer data from the sensor to the smartphone		T2.2					
10	Data size to store in the GeoDatabase is much greater than expected	Medium	Medium	The modularity of the physical set-up will allow the storage size to be increased, if necessary, as well as the used network bandwidth.			T3.1				
11	Difficulty to agree on a consistent data structure from the results of WP1	Low	Medium	Personnel responsible of T3.1 will also be involved T1.3, to be able to continue the work on the Geodatabase implementation with which is already agreed, while the last details on structure for data formats and services interfaces are ironed out.			T3.1				

Risk nº	Risk	Likelihood	Impact	Avoid/Mitigate	WP1	WP2	WP3	WP4	WP5	WP6	WP7
12	Low impact of the policy recommendations developed	Medium	High	Collaborate with other projects and contact with a high variety of stakeholders since the beginning of the project.							T7.3
13	Other selected projects not interested/ not available	Low	Medium	The selected projects for the cooperation have the obligation/budget to participate in such events. Events focused on Scientific/Technical field related to increase the interest for the expert communities.							T7.4
14	Another pandemic	Low	High	Digital Cooperation and meetings	All	All	All	All	All	All	All

Annex IV: Minutes Template

Scope, location and general information

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Meeting minutes

Day 1: Meeting title

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Presentation 1 - Presenter name (partner name)

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DISCUSSION POINTS:

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If you want to underline a word or sentence, use the dark green (RGB 38, 130, 47) of the project in bold letter.

For bullet lists, use can use them following styles:

- Point 1
- Point 2
    - Point 2.1
    - Point 2.2

Presentation 2 - Presenter name (partner name)

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DISCUSSION POINTS:

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Presentation 3 - Presenter name (partner name)

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DISCUSSION POINTS:

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Presentation 4 - Presenter name (partner name)

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DISCUSSION POINTS:

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Q&A, Open Discussion, next steps, AOB

FINAL REMARKS

Based on the meeting outcomes, the following actions are noted/planned (urgent actions in **green bold**).

Partner in charge	When	Related WP/Task	Action Required
Acronym	DD/MM/YYYY	Description	Description

Annexes

Annex 1: Agenda

Time	Title	Presenter
09:15 – 10:00	xxx	Name, Entity

Annex 2: List of attendees

Entity	Role in the project	Attendees	Apologies
	WPX Leader/ XXX Leader		

Annex V: PM distribution across tasks

The next distribution of Person Months across tasks is indicative:

	CTFC	MICRO	BLUEB	OTME	SIMTRO	UNITBV	INNO	FMMF	TREE	PIVET	CNR	ARBO	BOSCAT	LAMMA	UEF	FISKAR	SILVA	ASEMFO	EOS	KONE	ASFOR	TOTAL
WP1 - System requirements analysis and interoperability	3	6	5	8	1	4	4	5	10	4	15	2	3	14	6	2	4	3	3	1	4	107
T1.1 Jun23 - Nov23	1	2.5	2	3.5	0.25	1.5	1.5	2	3	1.5	5	0.5	1	3	**4**	0.5	1.5	2	1	0.25	1.5	38
T1.2 Sep23 - Nov26	1	1	1	1	0.5	1	1	1	2	1	**5**	1	1	3	1	1	1	1	2	0.5	1	**27**
T1.3 Sep23 - May26	1	2.5	2	3.5	0.25	1.5	1.5	2	5	1.5	5	0.5	1	**8**	1	0.5	1.5	1	1	1.5	1.5	**42**
WP2 - Prototyping data	2	78	5	65	24	7	34	0	45	9	10	8	0	0	22	3	0	0	0	0	0	312
T2.1 Aug23 - May 26	0.5	3	5	**16.25**	11	1	2	0	1	0	2.5	0	0	0	1	0	0	0	0	0	0	43.25
T2.2 Aug23 - May 26	0.5	3	0	2	1	4	2	0	33	0	2.5	**8**	0	0	1	0	0	0	0	0	0	57
T2.3 Aug23 - May 26	0.5	3	0	**40.5**	11	1	15	0	10	0	2.5	0	0	0	19	0	0	0	0	0	0	102.5
T2.4 Aug23 - May 26	0.5	**69**	0	6.25	1	1	15	0	1	9	2.5	0	0	0	1	3	0	0	0	0	0	109.25
WP3 - Setting-up the IT infrastructure and development of applications	15	7	12	6	0	2	5	0	54	0	30	1	0	19	8	0	0	0	0	0	0	159
T3.1 Feb24 - Nov24	5	2	3	2	0	0	4	0	7	0	**15**	0	0	9	3.5	0	0	0	0	0	0	50.5
T3.2 Feb24 - May25	5	2	4	2	0	2	0.5	0	7	0	**10**	0	0	7	3.5	0	0	0	0	0	0	43
T3.3 Nov24 - May26	5	3	5	2	0	0	0.5	0	**40**	0	5	1	0	3	1	0	0	0	0	0	0	65.5
WP4 - Demonstrations	20	24	10	37	8	40	10	12	16	10	32	2	6	1	12	6	12	12	0	1	3	266
T4.1 Nov24 - Jul25	9.5	12	1	18.5	4	20	4	4	1	5	**28**	0.75	2	0.5	6	3	6	4	0	0.5	1.5	129.25
T4.2 Mar25 - Feb27	9.5	12	2	18.5	4	**20**	5	4	1	5	3	0.75	2	0.25	6	3	6	4	0	0.5	1.5	106
T4.3 Mar25 - May26	1	0	**7**	0	0	0	1	4	14	0	1	0.5	2	0.25	0	0	0	4	0	0	0	30.75
WP5 - Data analysis and modeling	38	12	1	0	0	31	5	0	17	0	17	1	0	3	34	0	0	0	0	0	0	159
T5.1 Dec24 - May26	18	12	0.25	0	0	0	5	0	0	0	3	1	0	0	**12**	0	0	0	0	0	0	51.25
T5.2 Dec24 - May27	18	0	0.25	0	0	0	0	0	8	0	3	0	0	0	**12**	0	0	0	0	0	0	41.25
T5.3 Dec24 - May27	1	0	0.25	0	0	11	0	0	8	0	**8**	0	0	3	3	0	0	0	0	0	0	34.25
T5.4 Mar25 - Jan27	1	0	0.25	0	0	**20**	0	0	1	0	3	0	0	0	7	0	0	0	0	0	0	32.25
WP6 - Exploitation, dissemination and communication	17	9	8	19	5	19	7	10	13	6	20	0	6	0	10	3.5	12	10	22	4	11	207.5
T6.1 Jun24 - Dec26	3	3	0	15	0.5	4	0	**6**	8	1	4	0	1	0	2.5	0	5	6	0	0	0	53
T6.2 Jun23 - May27	**5**	3	4	2	2	5	2	1	1	1	2	0	1	0	2.5	0.5	1	1	8	0.5	1	43.5
T6.3 Jun23 - May27	5	3	2	2	2	5	2	1	1	1	2	0	1	0	2.5	0.5	1	1	**8**	0.5	1	41.5
T6.4 Jun23 - May27	4	0	2	0	0.5	5	3	2	3	3	12	0	3	0	2.5	2.5	5	2	**6**	3	9	69.5
WP7 - Scientific management and project coordination	63	3	2	4	3	3	3	4	3	1	5	1	1	1	4	1	1	4	1	1	1	108
T7.1 Jun23 - May27	**48**	1	1	2	1	1	1	1	1	0.25	1	0.25	0.25	0.25	1	0.25	0.25	1	0.25	0.25	0.25	62.25
T7.2 Jun23 - May27	**8**	1	0.5	1	1	1	1	1	0.5	0.25	1	0.25	0.25	0.25	1	0.25	0.25	1	0.25	0.25	0.25	19.5
T7.3 Jun23 - May27	**3**	0.5	0.25	0.5	0.5	0.5	0.5	1	1	0.25	1	0.25	0.25	0.25	1	0.25	0.25	1	0.25	0.25	0.25	12.25
T7.4 Jun23 - May27	**4**	0.5	0.25	0.5	0.5	0.5	0.5	1	0.5	0.25	2	0.25	0.25	0.25	1	0.25	0.25	1	0.25	0.25	0.25	14

Annex VI: Minutes from the First General Assembly

ACRONYMS

AB: Advisory Board

ARBOREAL: Arboreal AB

ASEMFO: Asociación Nacional de Empresas Forestales

ASFOR: Asociatia Forestierilor Din Romania ASFOR

BLUEB: Bluebiloba Startup Innovativa SRL

BOSCAT: Boscat Fusta S.L.

CNR: Consiglio Nazionale delle Ricerche or National Council for Research

CTFC: Forest Science and Technology Centre of Catalonia

DS: Demonstration Site

DSL: Demonstration Site Leader

EC: European Commission

EOS: European Organisation of the Sawmill Industry

FISKAR: Fiskarhedens Trävaru Aktiebolag

FMMF: Associazione Foresta Modello delle Montagne Fiorentine

INNO: Innorenew Coe Center Odlicnosti Za Raziskave In Inovacije Na Podrocju Obnovljivih Materialov In Zdravega Bivanjskega Okolja

KONE: Koneyrittäjien Ry

LAMMA - Laboratorio di Monitoraggio e Modellistica Ambientale per lo Sviluppo Sostenibile

MICRO: MiCROTEC S.R.L.

OTME: Otmetka Holding Ab

PIVET: PiveteauBOIS

RIC: Responsible Innovation Committee

SILVA: SILVADOR Company S.R.L

SIMTRO: Simtrona, Razvojna Dejavnost, D.O.O.

TL: Task Leader

TREE: Treemetrics Ltd

UEF: Itä-Suomen Yliopisto

UNITBV: Universitatea Transilvania Din Brasov

WP: Work Package

WPL: Work Package Leader

WELCOME

CTFC presented the **agenda** for the General Assembly:

Officialization of:

- Project Coordination Unit
- Project Management Team
- Work Package Leaders
- Demonstration sites Leaders
- Task Leaders

Amendments:

- GA (General Assembly) minor changes (Gantt chart, deliverable/milestone dates…)

Election of:

- Advisory Board (AB)
- Logo
- Sentence that better define the SINTETIC project

Upcoming consortium meeting

After informing about the agenda, CTFC Coordinators proceed with the General Assembly.

VOTING PERSONS FOR THE GENERAL ASSEMBLY

CTFC verified the voting persons for the General Assembly. CTFC proposed to assume and adopt the next official institutions and voting representatives for this General Assembly.

Table 11 Voting persons for the General Assembly

Partner	Voting person	Contact e-mail	Partner	Voting person	Contact e-mail
1-CTFC	Antonio Ruano	antonio.ruano@ctfc.cat	12-ARBO	Johan Ekenstedt	johan.ekenstedt@arboreal.se
2-MiCRO	Enrico Ursella	enrico.ursella@microtec.eu	13-BOSCAT	Diana González	diana@boscat.cat
3-BLUEB	Guido Milazzo	guido.milazzo@bluebiloba.com	14-LAMMA	Manuela Corongiu	corongiu@lamma.toscana.it
4-OTME	Bengt Soervik	bengt.sorvik@otmetka.com	15-UEF	Blas Mola	blas.mola@uef.fi
5-SIMTRO	Simon Stegel	simon.stegel@simtrona.si	16-FISKAR	Magnus Larsson	magnus.larsson@fiskarheden.se
6-UNITBV	Stelian Alexandru Borz	stelian.borz@unitbv.ro	17-SILVA	Marcel Bercaru Nicu	m.bercaru@silvador.ro
7-INNO	Jakub Sandak	jakub.sandak@innorenew.eu	18-ASEMFO	Miguel Ángel Duralde	duralde@ceifra.com

Partner	Voting person	Contact e-mail	Partner	Voting person	Contact e-mail
8-FMMF	Silvia Vannini	associazione@forestamodellomontagnefiorentine.org	19-EOS	Silvia Melegari	silvia.melegari@eos-oes.eu
9-TREE	Garret Mullooly	gmullooly@treemetrics.com	20-KONE	Simo Jaakkola	simo.jaakkola@koneyrittajat.fi
10-PIVET	Ugo Gerard	ugo.gerard@piveteau.com	21-ASFOR	Ciprian Dumitru Musca	cabinet@asfor.ro
11-CNR	Gianni Picchi	gianni.picchi@cnr.it			

As there were no objections, **the General Assembly accepted the proposed representatives for voting during this General Assembly.**

OFFICIALIZATION OF PROJECT COORDINATION UNIT (PCU)

CTFC formalized the representatives of the Project Coordination Unit (PCU) of SINTETIC project. CTFC proposed to assume and adopt the next official institutions and representatives of the unit.

Table 2 Project Coordination Unit members

Project Coordination Unit	Partner	Task Leader (TL)	Contact
Overall coordinator	CNR / CTFC	Gianni Picchi	gianni.picchi@cnr.it
Deputy coordinator	CTFC	Antonio Ruano	antonio.ruano@ctfc.cat
Project manager	CTFC	Arnau Picó	arnau.pico@ctfc.cat

As there were no objections, **the General Assembly accepted the proposed representatives for the Project Coordination Unit (PCU)**.

OFFICIALIZATION OF PROJECT MANAGEMENT TEAM (PMT)

CTFC formalized the representatives of the Project Management Team (PMT) of SINTETIC project. CTFC proposed to assume and adopt the next official institutions and representatives of the team.

Table 3 Project Management Team members

Project Management Team	Partner	WPL Leader (TL)	Contact
PCU	CTFC	WP7	gianni.picchi@cnr.it antonio.ruano@ctfc.cat arnau.pico@ctfc.cat

WP1. System requirements analysis and interoperability	LAMMA	Manuela Corongiu	corongiu@lamma.toscana.it
WP2. Prototyping data providing systems	INNO	Jakub Sandak	jakub.sandak@innorenew.eu
WP3. Setting-up the IT infrastructure and development of applications	TREE	Alejandro Poveda	jpoveda@treemetrics.com
WP4. Demonstrations	CNR	Carla Nati	carla.nati@cnr.it
WP5. Data analysis and modelling	UEF	Blas Mola	blas.mola@uef.fi
WP6. Exploitation, dissemination and communication	EOS	Silvia Melegari	silvia.melegari@eos-oes.eu

As there were no objections, **the General Assembly accepted the proposed representatives for the Project Coordination Unit (PCU)**.

OFFICIALIZATION OF WORK PACKAGE LEADERS

CTFC formalized the representatives for each Work Package of the SINTETIC project. CTFC proposed to assume and adopt the next official institutions and representatives for each Work Package.

Table 4 Work Package Leaders

Work Package	Partner	Work Package Leader (WPL)	Contact
WP1. System requirements analysis and interoperability	LAMMA	Manuela Corongiu	corongiu@lamma.toscana.it
WP2. Prototyping data providing systems	INNO	Jakub Sandak	jakub.sandak@innorenew.eu
WP3. Setting-up the IT infrastructure and development of applications	TREE	Alejandro Poveda	jpoveda@treemetrics.com
WP4. Demonstrations	CNR	Carla Nati	carla.nati@cnr.it
WP5. Data analysis and modelling	UEF	Blas Mola	blas.mola@uef.fi
WP6. Exploitation, dissemination and communication	EOS	Silvia Melegari	silvia.melegari@eos-oes.eu
WP7. Scientific coordination and project management	CTFC	Arnau Picó	arnau.pico@ctfc.cat

As there were no objections, **the General Assembly accepted the proposed representatives for the Work Package Leaders**.

OFFICIALIZATION OF DEMONSTRATION SITES LEADERS

CTFC presents the proposed Demonstrations Site Leaders after receiving the inputs from the partners.

Table 5 Living Lab Leaders

Demonstrating site	Partner	Demonstration Site Leader (DSL)	Contact
DS1-Italy	BLUEB	Guido Milazzo	guido.milazzo@bluebiloba.com
DS2-Spain	BLUEB	Guido Milazzo	guido.milazzo@bluebiloba.com
DS3-Finland	UEF, KONE	Heli Kimäläinen Simo Jaakkola	heli.kymalainen@uef.fi simo.jaakkola@koneyrittajat.fi
DS4-Romania	ASFOR	Ciprian Musca	cabinet@asfor.ro
DS5-Transtrand, Sweden	FISKAR	Magnus Larsson	magnus.larsson@fiskarheden.se
DS6-Vendé, France	PIVET	Ugo Gerard	ugo.gerard@piveteau.com
DS7-Barcelona, Spain	BOSCAT	Jordi Tarradas	gerent@boscat.cat
DS8-Finland	UEF	Heli Kimäläinen	heli.kymalainen@uef.fi
DS9-Romania	ASFOR	Ciprian Musca	cabinet@asfor.ro
DS10-Florence, Italy	FMMF	Matteo Mazzoni	progettazione@forestamodellomontagnefiorentine.org

ASENFO offered to co-lead the DS-7 and add to the demonstration site other areas in Spain apart from Catalonia. Gianni Picchi, from the PCU, express the willingness to increase as much as possible the demonstration sites, if budget permits it. A representative of CNR express the interest to participate in future discussions about leadership of demonstration sides.

As there were no objections, **the General Assembly accepted the proposed representatives for the Task Leaders.**

OFFICIALIZATION OF TASK LEADERS

CTFC formalized the representatives for each Task of the SINTETIC project. CTFC proposed to assume and adopt the next official institutions and representatives for each Task.

8.1 WP1 Task Leaders

Table 6 WP1 Task Leaders

Task	Partner	Task Leader	Contact
Task 1.1. Multi-actor and multi-perspective analysis of current supply chain requirements and solutions	UEF	Blas Mola	blas.mola@uef.fi
Task 1.2. Data Management Plan	CNR	Tiziana De Filippis	tiziana.defilippis@ibe.cnr.it
Task 1.3. Information platform and geospatial infrastructure modelling	LAMMA	Manuela Corongiu	corongiu@lamma.toscana.it

8.2 WP2 Task Leaders

Table 7 WP2 Task Leaders

Task	Partner	Task Leader	Contact
Task 2.1: ID detection systems	OTME	Bengt Soervik	bengt.sorvik@otmetka.com
Task 2.2: Smartphone APPs for manual operations	ARBO	Johan Ekenstedt	johan.ekenstedt@arboreal.se
Task 2.3: Forest harvester prototype	OTME	Bengt Soervik	bengt.sorvik@otmetka.com
Task 2.4: Sawmill sensors	MICRO	Enrico Ursella	enrico.ursella@microtec.eu

8.3 WP3 Task Leaders

Table 8 WP3 Task Leaders

Task	Partner	Task Leader	Contact
Task 3.1. Implementation of SINTETIC Geodatabase infrastructure	CNR	Salvatore Minutoli (CNR-IIT)	salvatore.minutoli@iit.cnr.it
Task 3.2. Data acquisition and processing services	CNR	Gianni Picchi	gianni.picchi@cnr.it
Task 3.3. SINTETIC Forest App Centre: Applications and Services	TREE	Alex Poveda	jpoveda@treemetrics.com

8.4 WP4 Task Leaders

Table 9 WP4 Task Leaders

Task	Partner	Task Leader	Contact
Task 4.1. Demo planning	CNR		

Task	Partner	Task Leader	Contact
Task 4.2. Demo execution	UNITBV	Stelian Alexandru Borz	stelian.borz@unitbv.ro
Task 4.3. Enhancement of forest value and management with digital tools	BLUEB	Guido Milazzo	guido.milazzo@bluebiloba.com

8.5 WP5 Task Leaders

Table 10 WP5 Task Leaders

Task	Partner	Task Leader	Contact
Task 5.1. Wood quality modelling: boards-roundwood-tree interrelations	UEF	Blas Mola	blas.mola@uef.fi
Task 5.2. Mobile LiDAR data analysis for remaining trees	UEF	Blas Mola	blas.mola@uef.fi
Task 5.3. Illegal logging alert service	CNR	Lorenzo Arcidiaco	lorenzo.arcidiaco@cnr.it
Task 5.4. Economic and technical assessment	UNITBV	Stelian Alexandru Borz	stelian.borz@unitbv.ro

8.6 WP6 Task Leaders

Table 11 WP6 Task Leaders

Task	Partner	Task Leader	Contact
Task 6.1. Training to digitalization	FMMF	Matteo Mazzoni	progettazione@forestamodellomontagnefiorentine.org
Task 6.2. Dissemination Actions	CTFC	Berta Carreño	berta.carreno@ctfc.cat
Task 6.3. Communication Actions	EOS	Silvia Melegari	silvia.melegari@eos-oes.eu
Task 6.4. Exploitation plan development	EOS	Silvia Melegari	silvia.melegari@eos-oes.eu

8.7 WP7 Task Leaders

Table 12 WP7 Task Leaders

Task	Partner	Task Leader	Contact
Task 7.1. Technical, financial and administrative coordination	CTFC	Arnau Picó	arnau.pico@ctfc.cat

Task	Partner	Task Leader	Contact
Task 7.2. Project quality control and reporting	CTFC	Antonio Ruano	antonio.ruano@ctfc.cat
Task 7.3. Impact assessment	CTFC	Arnau Picó	arnau.pico@ctfc.cat
Task 7.4. Cooperation with other selected projects under this topic and other relevant projects	CNR/CTFC	Gianni Picchi	gianni.picchi@cnr.it

Treemetrics representative pointed out the suitability of Task Leader (TL) of Task 2.2. highlighting that proposed TL is not the lead beneficiary of any Deliverables associated with this task.

CTFC emphasized that the task leaders hold a strategic position, which may occasionally differ from the partners responsible for the deliverables associated with the task and also applying distribution of tasks criteria.

UEF representative pointed out that for now it is acceptable to be the contact person as task leader for most of the tasks the UEF is in charge, but it will change in the near future when the tasks are distributed among the various UEF members.

As there were no more objections, **the General Assembly accepted the proposed representatives for the Task Leaders.**

AMENDMENT REQUEST

The Grant Agreement is a contract between the Commission and the beneficiaries. When the situation requires it, there is a possibility to make an amendment.

During the General Assembly, CTFC informed of the first amendment that modified the project starting date, which has already been submitted and approved.

CTFC proposed to collect all the errors partners may find in the proposal of the Description of the Action and other suggestions related with task modification and person months. The objective of this process is to concentrate all changes in one amendment to avoid workload. CTFC shared the expectation to finish this process not later than 5 months from the KoM (Kick Off Meeting).

In summary, the CTFC indicated the possible amendments that partners may inform to coordinators:

1. Partners involved on each task – Description of the Action text.
2. Task reallocation from one partner to other.
3. PM (Person Months) adjustments at the funding and tender portal.
4. Deliverables title and detailed descriptions if needed.
5. Others.

As there were no objections, **the General Assembly accepted the proposed changes to the Amendment request.**

ELECTION OF ADVISORY BOARD GROUP

The SINTETIC partners will be supported by an Advisory Board assessing and evaluating the technical, scientific and exploitation aspects of the project.

The AB will consist of leading international experts from academic and practitioner communities.

The selection criteria are based on their experience, skills or business connection to some aspect of the digitalization of the forest sector. As such, an additional added value of the AB will be the capacity to broaden the international and societal impact of the project.

The AB will meet:

a) at the beginning of the project (about M6) providing advice in the planning phase,

b) at mid-term of the project (about M28) to assess the correct development of the activities and suggest adjustments and

c) at the end of the project to verify the correct scientific and impact achievements of SINTETIC.

CTFC have been contacting with different people and at the moment of the General Assembly there is a proposal of **five members**:

Table 13 Advisory Board Group members

Name	Gender	Country	Organization	Profile
Dick Sandberg	Masculine	Sweden	Professor of Wood Science and Engineering at Luleå University of Technology	Timber X-ray scanning, tomography analysis and sawmill transformation
Dominik Röser	Masculine	Canada	Program Director, Forest Resources Management & Forest Operations Programs; Associate Professor University of British Columbia	Timber supply chains, forest operations and precision forestry
Esther Merlo Sánchez	Feminine	Spain	Director R+D+I department, Madera Plus Calidad Forestal S.L.	Non-destructive testing of wood and quality evaluation (log and standing forest)
Masahiko Nakazawa	Masculine	Japan	Researcher and chief Harvest system Laboratory at Forestry and Forest Products Research Institute (FFPRI)	Sensors for the optimization of timber value chains
Sanna Kaasalainen	Feminine	Finland	Director of the Navigation and Positioning department at Finnish Geospatial Research Institute (FGI)	Optical sensors, GNSS, positioning, situational awareness, LiDAR, environmental monitoring

Since the Advisory Board can be composed of more members, CTFC asked the partners to propose experts to join the board. It was explained that the expected profiles should not overlap the expertise of the others.

A PCU member highlighted the importance of including an expert on LiDAR (Light Detection and Ranging), which is an important development of the project. The profile may come from business as well.

The PCU has explicitly informed the members the importance of having a diverse and balanced Advisory Board in terms of gender, origin, and profiles.

As there were no objections, **the General Assembly accepted the proposed representatives for the Advisory Board Group.**

ELECTION OF the LOGO

CTFC communication team proposed 4 logos for the SINTETIC Project to the General Assembly, apart from the already existing logo used in the proposal documents.

A voting process took place, being the two most-voted logo were the following ones:

Prior to commencing the iterative voting process between the two most-voted logos, UEF representative emphasized the importance of allowing all partners ample time to make an informed decision. As a solution, they proposed implementing a Doodle-like method to streamline the voting process once the meeting concludes. As there were no objections, **the General Assembly accepted the proposed method to decide the logo of the project.**

ELECTION OF THE SLOGAN

CTFC presented a collection of possible slogans for the SINTETIC Project.

Table 14 Slogan proposals

1.	More value to all by tracing timber from the product
2.	Closing the timber value chain
3.	Digitalize the forest build the future
4.	Digital forest only once, value chain forever
5.	Digitalization for the timber value-chain.
6.	Digitalization of the timber sector through global traceability system.
7.	Digitalizing the timber sector (or timber production / wood production).
8.	Making the timber supply chain traceable.

9.	Timber traceability system
10.	Track the forest to build the future
11.	Understand the story encrypted in timber
12.	From forest to timber
13.	From woods to products
14.	Manage the forest build the future
15.	Assess the forest build the future
16.	Traceability tools and quality sensors for healthier forests and more valuable timber
17.	Product traceability for the digitalization of the forest value chain
18.	Optimized forest value chains and improved forest management through full product and data traceability
19.	Product tracking and data exchange for enhanced timber value chain and forest management.
20.	Digitalizing the forest value chain for healthier forests and higher value of timber products.

CTFC proposed to use the same voting process as the one accepted by the General Assembly for the election of the logo.

As there were no objections, **the General Assembly accepted the proposed method to decide the slogan.**

UPCOMING CONSORTIUM MEETINGS

Due to internal discussions with some partners we agreed to celebrate the next consortium meetings:

- **1st Interim Meeting (M12) in Romania hosted by UNITBV** (June 2024)

As there were no objections, **the General Assembly accepted the proposed next consortium meetings**.

OTHER BUSINESS

CTFC Coordination Team thanks everyone and wishes them well.

Annex VII: Protocol to prevent and act against sexual harassment, harassment on grounds of sex, sexual orientation, gender identity or gender expression, and male chauvinist violence in the SINTETIC Consortium (GA 101082051)

Preamble

This protocol is based on:

- Universal Declaration of Human Rights, 10.12.1948. Art. 2.
- Convention on the Elimination of All Forms of Discrimination against Women, adopted on December 18, 1979, by the General Assembly of the United Nations, which entered into force as an international treaty on September 3, 1981, and the Optional Protocol has been in force since 2001.
- II World Conference on Women. Nairobi, 1985.
- IV World Conference on Women. Beijing, 1995, and subsequent revisions.
- General Assembly Resolution 48/104, 23.2.1994, on the Declaration on the Elimination of Violence against Women.
- The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW, 1979), which establishes the principle of non-discrimination and proclaims that all human beings are born free and equal in dignity and rights, regardless of any distinction, neither on grounds of sex, and which urges to appeal to all rights and freedoms it proclaims, with particular emphasis, in Articles 10 and 11, to equal rights between women and men in education and employment.
- The Declaration on the Elimination of Violence against Women by the General Assembly of the United Nations, resolution 48/104/1993, which defines in the Articles 1 and 2 what constitute acts of violence against women and the frameworks within which this violence is committed.
- The Charter of Fundamental Rights of the European Union (Nice, 2000), which prohibits, in Article 21, any form of discrimination and, in particular, on the grounds of sex, race, ethnic or social origin, disability, age or sexual orientation, among others, and which also defines the right to education and employment in Articles 14 and 15.
- Directive 2002/73/EC of the European Parliament and of the Council of 23 September 2002 amending Council Directive 76/207/EEC of the Council, on the implementation of the principle of equal treatment for men and women regarding access to employment, vocational training and promotion, and working conditions, whose Article 2 defines and prohibits conducts of harassment.
- Directive 2006/54/EC of the European Parliament and of the Council of 5 July 2006 on the implementation of the principle of equal opportunities and equal treatment of men and women, which, regarding employment and occupation, proclaims that situations of harassment and sexual harassment constitute a form of discrimination and shall therefore be prohibited and be subject to effective, proportionate and dissuasive penalties. The Commission Recommendation on the protection of the dignity of women and men at work of 27 November 1991 is the European standard to develop preventive measures regarding this EU Directive.

CHAPTER I. COMMITMENTS, GOALS, DEFINITIONS, SCOPE, RESPONSIBLE BODIES AND UNITS

Article 1. Commitments by the SINTETIC Consortium

The SINTETIC CONSORTIUM considers sexual harassment, harassment on the grounds of sex, sexual orientation, gender identity or gender expression and male chauvinist violence as condemnable behaviours, and hence commits to take a comprehensive approach:

- To formally declare and spread its rejection to all types of male chauvinist harassment or violence, in all forms or manifestations.
- To promote a prevention culture against harassment and male chauvinist violence by the means of training and information actions to raise awareness among the whole SINTETIC consortium.
- To report and investigate, according to this protocol, any behaviour which may constitute harassment or male chauvinist violence.
- To accompany and assist the victims of male chauvinist harassment or violence.

These commitments are public and are shared to all the members of the SINTETIC consortium.

Article 2. Goals

This protocol has the following goals:

a) To prevent the emergence of sexual harassment behaviours and harassment on the grounds of sex, sexual orientation, gender identity or gender expression and male chauvinist violence among the members of the SINTETIC consortium, through information on the existence of this protocol.

b) To establish action guidelines in the case of a report to the harassment monitor committee of the aforementioned behaviours and, if necessary, to adopt the appropriate prevention and/or correction measures, regardless of whether the affected person decides to resort to other administration or judicial procedures different from this protocol.

c) To establish support and accompaniment measures for the affected persons.

Article 3. Definitions

3.1. Sexual harassment and harassment on the grounds of sex, sexual orientation, gender identity, or gender expression behaviours:

a) *Sexual harassment* is defined as any behaviour, verbal or physical, of a sexual nature that is exhibited with the purpose or effect of violating the dignity of a person and of creating an intimidating, degrading or offensive environment. One example of this harassment would be exhibitionism.

b) *Harassment on grounds of sex or Gender-based harassment*, is defined as any behaviour exhibited with the purpose or effect of violating human-being dignity and creating an intimidating, degrading or offensive environment. This kind of harassment also includes attitudes and behaviours in the work environment aimed at reinforcing the traditional gender roles on being women or being men that punish any deviation from these norms of gender and the display of new behavioural models or attitudes and behaviours in the work environment based on sex-related reasons or events, such as those taking place due to women's pregnancy or maternity in relation to the enforcement of labour rights designed to balance personal life, family and work (for example, schedule changes or a change in roles or workplace).

c) *Harassment on grounds of sexual orientation, gender identity or gender expression* occurs where a conduct is based on a person’s sexual orientation, gender identity or gender expression with the purpose or effect of violating their dignity or their physical or psychological integrity and of creating an intimidating, hostile, degrading, humiliating, offensive or unpleasant environment. One example of this would be rumours and jokes about the sexual orientation of an individual.

3.2. Male chauvinist violence behaviours

This protocol may be activated in the occurrence of the following behaviours:

Physical violence: any act of force against the body of a woman, with the result or risk of causing her a physical wound or damage.

Psychological violence: any behaviour addressed to intentionally excluding or diminishing the professional role of a woman, by means of authoritative behaviours, isolation or any other limitation of her freedom and professional dignity.

Sexual violence and sexual abuses: any act of sexual nature carried out to a woman without her consent. This includes the exhibition, observation and imposition, using violence, intimidation, prevalence or emotional manipulation, of sexual intercourse, no matter if the alleged aggressor has an affective relationship with the woman or not.

Unwanted contacts. Any undesired touch perceived as inappropriate by the receiver.

3.3. Those behaviours that may be considered a crime will be reported by the harassment monitor committee to the corresponding Prosecution Ministry of its country, with the consent of the affected person.

The following list of harassment behaviours must be considered only illustrative and not complete:

TYPE OF BEHAVIOUR	EXAMPLES
VISUAL	- Ogling, staring lustfully - Staring repeatedly at breasts, genitals or buttocks - Exhibiting images with sexual content - Making obscene gestures - Exhibiting genitalia - Peeping
VERBAL	- Insistently asking for dates - Asking about personal or sexual life, causing discomfort - Making lascivious comments - Making sexist jokes or comments - Whistling at a person - Making sexual insinuations - Spreading sexual rumours or gossip about another person - Pressuring someone with the purpose of sexual ends when that person has already said no - Pet names, “endearing” epithets - Making offensive compliments - Making derogatory comments about gender, gender orientation or sexual identity in general - Making unwanted impertinent telephone calls - Mocking people who take on tasks traditionally assumed by the opposite sex, eider verbally or mimicking. - Remarks on hairstyle or clothing both to criticize or to express sexual appreciation - Insensitivity to gender or high-handed behaviour - Making jokes about the intellectual capacity or limited abilities of a person based on gender, gender identity or sexual orientation
WRITTEN	- Sending unwanted love poems or notes, including those sent through Information and Communication Technologies (ICTs) - Sending any type of pornography, including that sent through Information and Communication Technologies (ICTs) - Sending suggestive notes, including those sent through Information and Communication Technologies (ICTs)
CONTACT	- Invading personal space - Patting any part of the body that may be considered inappropriate by the receiver - Grabbing any part of the body that may be considered inappropriate by the receiver - Pinching any part of the body that may be considered inappropriate by the receiver - Stroking any part of the body that may be considered inappropriate by the receiver

TYPE OF BEHAVIOUR	EXAMPLES
	- Kissing any part of the body that may be considered inappropriate by the receiver - Hampering the movement of a person in search of physical contact
POWER	- Using one's formal or informal hierarchical position to ask for dates or sex
THREATS	- Threatening to fire someone if refuses dates or sex - Blocking or accelerating the access to benefits, contacts or projects
FORCE	- Rape - Physical aggression - Using physical superiority (height, build, etc.) to dominate another person in any way

Article 4. Scope

4.1. Material scope

This protocol applies to any of the behaviours defined in article 3 taking place orally, face-to-face or electronically:

- In the place and time of work; when travelling to or from the working place; in the course of travelling to a place other than the usual to conduct an activity assigned by the Consortium or in the performance of tasks entrusted by Consortium or carried out spontaneously in the interest of the proper functioning, even if they are different from the usual ones, different from their professional category or at a different work schedule from the usual one, always within the framework of an institutional relationship - if the expenses associated with those tasks are financed by Consortium. For example, when a partner is invited to lecture and afterwards taken to dinner.

- Harassment perpetrated through communication technologies (ex., by e-mail, WhatsApp, over LinkedIn, Facebook, Twitter or any social networks or instant messaging platform).

4.2. Subjective material scope

This protocol shall apply to:

a) All staff of the SINTETIC CONSORTIUM. If less than a year has passed since the person has ceased to be part of the personnel working for the project, regardless the reason, as long as the project is in force, this protocol is equally applicable, given that the author or authors of the behaviour are still part of the SINTETIC consortium personnel and that the reported events happened before the date the affected person ceased to have a link with the SINTETIC CONSORTIUM.

b) The staff of external companies hired by the SINTETIC CONSORTIUM and carrying out their services in the beneficiaries' premises, as long as one of the persons involved is part of the groups described in point A. External/subcontract companies shall be informed about the existence of this protocol. When there is a conflict between SINTETIC CONSORTIUM personnel and the personnel of an external company hired by the SINTETIC CONSORTIUM, there shall be reciprocal communication of the case, so each of the parts applies their respective action protocol and carries out the corrective or disciplinary actions deemed necessary.

c) Those people who are not part of any of the previous communities but who are users of the services provided by the SINTETIC Consortium as long as the reported person is part of the SINTETIC consortium.

4.3. Territorial scope

The Protocol application will be monitored within all the activities inherent the Project carried out by the SINTETIC CONSORTIUM and by all the external partners – at various level - involved.

Article 5 Who can report harassment

1. Whoever suffers harassment. Such harassment may be perpetrated by (a) specific person/s (interpersonal harassment) as well as the environment (hostile environmental harassment).

2. Whoever knows a case of harassment. It is important for every Consortium member to be committed to the creation of an equitable working environment. For this reason, indirect reporting is encouraged. Action in this case implies that the monitor committee will get in touch with harassment victim(s) and inform them that such a situation has been reported.

The different options available will be assessed in an interview and, if the harassment victim accepts, the procedure will go ahead.

If the harassment victim does not want to go ahead with the procedure, either because she/he doesn't consider her/himself harassed or afraid of the potential consequences it might cause, victim's wishes will be considered, and any concern, doubt or fear will be dealt with.

If the Monitoring Committee believes to face a real Harassment case, wishing to prevent similar situations in the future, it can decide to proceed, even against the same harassment victim, but in that case the report will clearly indicate that the harassment victim denies to participate to the process.

Article 6. Responsible bodies and units

The bodies and units which are responsible, according to their competences, of implementing the contents reported in this protocol are the following:

- SINTETIC Project Coordinator Unit (PCU): The SINTETIC PCU will make available to the monitor committee a confidential folder with restricted access for the management of information and files. After the reception of the final report from the monitor committee, the PCU may decide: to continue the investigation, to end the procedure by adopting the appropriate correction and protection, to begin the pertinent legal proceedings or to archive the actions.
- SINTETIC CONSORTIUM's MONITOR COMMITTEE (MC): it will provide ongoing support to the consortium concerning ethical issues, as well as ensuring gender and cultural diversity of the research and project management. It is also the body responsible for starting and solving all the necessary procedures started through this protocol to investigate behaviours of sexual harassment and harassment on the grounds of sex, sexual orientation, gender identity or gender expression and male chauvinist violence, and later decide, if necessary, the appropriate disciplinary responsibility. MC will be responsible for the attention, accompaniment and support during the activation of the Protocol. The Monitor Committee shall write an evaluation document that shall be sent to the SINTETIC PCU and keep safely all the presented reports and the adopted measures (prevention, support, accompaniment and action procedure).
- If the conduct occurs between personnel of the same entity, if there is a specific protocol of that entity, priority will be given to its application and if deemed necessary, coordinated action will be taken between the competent bodies of that entity and the Monitor Committee of the Consortium. If no such protocol exists, the present protocol will be activated.

The Monitor Committee shall meet at least once a year for the effective application of the Protocol, evaluation of the implemented measures in relation to the action procedure and (if necessary) proposal for amendments of improvements of these measures. These contents shall be collected in an evaluation document that shall be sent to the SINTETIC PCU.

CHAPTER II. PREVENTION MEASURES OF SEXUAL HARASSMENT BEHAVIOURS AND HARASSMENT ON THE GROUNDS OF SEX, SEXUAL ORIENTATION, GENDER IDENTITY OR GENDER EXPRESSION AND MALE CHAUVINIST VIOLENCE

Article 6. Prevention measures

With the goal of completely eradicating this kind of behaviours in the SINTETIC project environment and contributing to raise awareness among the SINTETIC consortium, the following measures are proposed:

a) To develop a communication strategy, with the goal of making this protocol known by all the members of the SINTETIC consortium. Among others, the tools which shall be used to disseminate it are:

- SINTETIC website
- SINTETIC Teams' workspace
- Emailing

b) To write and publish reports on the actions which have been carried out and their consequences. Specifically, an internal database including, anonymously and without references to personal data, all the information requests, reports, actions and resolutions shall be created. This responsibility shall be taken by the Monitor Committee. The PCU will provide the confidential folder with restricted access for the management of information and files.

c) The protocol will be reviewed periodically to ensure its effectiveness, encouraging feedback from consortium members and pervious experiences to make improvements.

CHAPTER III. SUPPORT AND ACCOMPANIMENT MEASURES FOR THE AFFECTED PERSONS

Article 7. Assistance measures

The SINTETIC Monitor Committee is the body that it is responsible of carrying out the first attention and informing about all the services available to offer support and accompaniment to the affected persons, and about the rights according to the current legal regulations. It is also the body which can take a first action in cases of male chauvinist harassment or violence.

CHAPTER IV. ACTION PROCEDURE IN THE CASE OF A REPORT

Article 8. Action principles

8.1. Hearing, impartiality and contradiction

The action procedure shall guarantee the hearing, fair treatment and the defence of all the people involved, which may be accompanied by the person they choose, including social agents or legal advisors, if considered opportune.

8.2. Protection of the dignity of the people involved

The SINTETIC consortium shall adopt the necessary measures to guarantee the right to protect the dignity of the people involved, including the reported people, by giving them support throughout the different stages of the procedure.

8.3. Confidentiality

The action procedure and its documentation are confidential. The confidentiality obligation extends to all persons taking part in the procedure. Accordingly, only the parties involved in the case, members of the Monitor Committee and anyone involved in the procedure may have access to its documentation and shall therefore be under the confidentiality obligation. If the confidentiality obligation is not respected, the appropriate disciplinary measures shall be adopted. The SINTETIC Coordinator will make available to Monitor Committee a confidential folder with restricted access for the management of information and files.

The reports created by the Monitor Committee can be anonymised, unless the victim and witnesses provide explicit consent, by changing the victim's name and relevant details that can lead to the identification of the victim.

8.4. Diligence and celerity

The information compilation process shall be carried out as fast as possible and taking as much sensibility and respect of the rights of each of the people involved as possible.

The investigation and resolution of the conflict shall be carried out professionally, with diligence, and without undue delays, so the procedure can be completed as fast as possible respecting its guarantees. In any case, the time to solve the actions planned in this protocol shall not exceed 30 days, starting from the day the corresponding report is presented, except in cases requiring more time due to their exceptional complexity.

Extraordinary meetings may be held less frequently than the stipulated yearly ones, if considered appropriate.

8.5. Protection against possible reprisal

All the necessary measures shall be taken to guarantee the absence of reprisals against the persons presenting a report, appearing as witnesses or taking part in an investigation on behaviours such as the ones described in this protocol, except in the cases in which these people act in bad faith, which may lead to disciplinary responsibilities as well as with false reports.

Article 9. Rights of the victim of sexual harassment, harassment on the grounds of sex, sexual orientation, gender identity or gender expression, or male chauvinist violence and of the reported person

9.1. Rights of the victim

a) To be informed about the meeting of the Monitor Committee.

b) To be accompanied by someone from the Monitor Committee.

c) To be called and listened.

d) To be treated fairly.

e) To be notified about the adopted cautionary protection measures.

f) To receive a full copy of the record's documentation.

g) To receive information on the resolution of the record.

h) Offer anonymous reporting options to ensure confidentiality

9.2. Rights of the reported person

a) To be informed about the meeting of the Monitor Committee.

b) To be informed about the report.

c) To have their presumption of innocence respected.

d) To be called and listened

e) To be accompanied by someone reliable or by legal representation throughout the whole process.

f) To be notified about the adopted cautionary protection measures.

g) To receive a complete copy of the record's documentation.

h) To be informed about the resolution of the report.

Article 10. Start of the procedure

10.1. The Monitor Commitee should encourage victims and witnesses to report incidents promptly and provide multiple reporting channels (e.g., email, mail, direct contact to any of the Monitor Commitee). The procedure begins when there is a report by the affected person of any person of the SINTETIC consortium with direct or indirect knowledge of the events leading to the report.

Anonymous reporting options are available for individuals who wish to report incidents without revealing their identity. In case anonymous report, the Monitor Committee should start the procedure and investigate the facts.

The report may affect a specific person, group or be related to the general behaviour of individuals that is considered inappropriate according to the scope of this protocol.

10.2. The action procedure begins by presenting the request to the Monitor Committee. This request shall be submitted by email containing the description of the facts leading to the request and the request for the Monitor Committee to meet. The corresponding model is attached at the end of this Annex. Once the Monitor Committee has finished the evaluation procedure, it shall send a report, to the SINTETIC PCU with a binding character, so it proposes, if necessary, correction and protection measures.

10.3. In view of the submitted request, the Monitor Committee will meet before 7 calendar days and may exceptionally be extended for 3 days after the date of the request. The Monitor Committee evaluates if there are indications of sexual harassment, harassment on the grounds of sex, sexual orientation, gender identity or gender expression or male chauvinist violence from the relation of the facts.

Article 11. Action by the Monitor Committee

11.1. The Monitor Committee is entrusted with the hearing and assistance of the person concerned and shall initiate the necessary help and support mechanisms to resolve specific cases, regardless of the final assessment.

11.2. The Monitor Committee shall also have a meeting with the reported person, resolve the reported events and issue a final report of its intervention. The final report shall include, at least, the following aspects:

a) Precedents (report and recurring circumstances —especially if the subordination situation between the reported person and the victim is recurring—);

b) Investigation record (victim statements, statement by the reported person, witnesses, other means of evidence and reports obtained during the investigation)

c) Results and, if necessary, proposed measures.

11.3. In the exercise of its duties, the Monitor Committee may request any necessary reports and ask, if necessary, for the collaboration of individuals to take due action. The whole SINTETIC consortium has the obligation to collaborate in the developing processes, by providing all the necessary documentation and information. If the procedure has begun and refers to people from different companies/entities, the companies/entities shall be notified about it.

11.4. If the Monitor Committee understands that it is a fact which is not harassment but a behaviour which is sexist or discriminatory or violates personal dignity, it shall inform the reporting person about the possible derivation of the conflict to a mediator agreed by both parts.

11.5. The members of the Monitor Committee shall guarantee during the whole process the confidentiality of the obtained data and information, except for those which should be communicated to third persons due to what is planned in this protocol. Regarding the treatment of personal data, the current regulations on data protection are considered.

Article 12. Cautionary measures

Considering the circumstances of each case, the Monitor Committee may propose to the PCU the adoption of cautionary measures to prevent contact or organic dependency between the affected person and the reported person (for example: change of schedule, change of group, change of workgroup, etc.), as well as to make the accompaniment of the affected person easier.

The adopted cautionary measures do not prefigure in any case the final result of this procedure. Measures that could cause damage of difficult or impossible reparation for the interested people or implying a violation of their rights cannot be adopted.

In any case, these measures expire with the enforcement of the resolution ending the procedure.

Article 13. End of the procedure

13.1. In the case of personnel, the Monitor Committee shall send the final report to the PCU, who using their competences, may decide:

a) To continue the investigation, if the reported facts or the people responsible are considered not to be sufficiently clarified.

b) To end the procedure by adopting the appropriate correction and protection measures (for example, a final schedule or group change, a reorganisation of workgroups, accompanying the victim as long as required, etc.).

c) To begin the pertinent legal proceedings when, based on the investigation record (statements by the victim, by the reported person and the witnesses, reports and other types of evidence) by the Monitor Committee, it can be proven that the reported facts may constitute a minor, serious or very serious offence according to the regulations in force.

d) To archive the actions. If the situation of sexual harassment, harassment on the grounds of sex, sexual orientation, gender identity or gender expression or male chauvinist violence cannot be determined, the procedure is considered to have concluded. In the case it is determined that there is bad faith in the report or that the data and witnesses are not real, the PCU may begin the appropriate disciplinary procedure.

Article 14. Duration of the procedure

The procedure shall have a maximum duration of 30 calendar days since the request is submitted to the Monitor Committee. This period may be extended exceptionally, in case the complexity of the case requires so.

Article 15. Follow-up

The Monitor Committee is responsible for monitoring the cases in which it has intervened.

Article 16. Filing and custody of documentation

Once the procedure has finished and the agreed actions have been implemented, the Monitor Committee shall be responsible for archiving and storing the record.

Protocol to prevent and act against sexual harassment, harassment on grounds of sex, sexual orientation, gender identity or gender expression, and male chauvinist violence in the SINTETIC Consortium Annex

(Document to be submitted in a closed envelope or by e-mail to the Monitor Committee of the SINTETIC Consortium accompanying the request for intervention of the Monitor Committee or by e-mail)

COMMUNICATION OF THE FACTS LEADING TO THE REQUEST TO THE MONITOR COMMITTEE APPLICANT'S INFORMATION

Name and surname:

ID:

Postal address:

E-mail:

Telephone:

Relationship with the SINTETIC CONSORTIUM:

INFORMATION OF THE PERSON FOR WHOM THE INTERVENTION IS REQUESTED

Name and surname:

Postal address *(if known)*:

E-mail *(if known)*:

Phone number *(if known)*:

Relationship with the SINTETIC CONSORTIUM:

DESCRIPTION OF THE FACTS LEADING TO THE REQUEST TO THE MONITOR COMMITTEE

Describe the events leading to this request, which shall be brought to the attention of the Monitor Committee.

ATTACHED DOCUMENTATION (if available)

Attach, if available, documentation supporting the petition.

OTHER CONSIDERATIONS

Name any other considerations if they are relevant.

Signature:

Name and surname:

Date and place:

Annex VIII: TECHNICAL PERIODIC/CONTINUOUS REPORTING SCHEME (only for the Coordinator or requested partners by the EU) as claimed by the European Commission

This annex corresponds to the set of the continuous reporting parts which need to be updated at the participant portal and by the coordinator. It is necessary to include this under the Project Management Plan since they constitute the basic information compulsory to share with the EC. Despite this will be done by the Coordinator, information will be gathered from all partners according to this through the PMT meetings and through the interim reports. Apart from this, also the technical report template and the financial report need to be updated, by each partner, every six months and to the Coordinator, as stipulated under Reporting and Payments part of this PMP. All documents will serve to track the project progress both at technical and financial level.

(1) PROJECT SUMMARY

This section is structured in four sub-sections that must be completed on-line with suitable quality to enable direct publication by the Commission/Agency/other EU funding body. It should be easy to read i.e. written in a language easily understandable by a broader public, thereby promoting the dissemination and supporting the exploitation of EU funded results. It should preferably not exceed 7480 characters (equivalent to two pages of a text document). This part must not contain any confidential or personal data (e.g. names and addresses).

The summary for publication must be drafted as a "stand-alone" text. No references should be made to other parts of the report. References can be made only to publicly available information.

Beside the summary filled within the tool, diagrams or photographs illustrating and promoting the work of the project can be provided (only as images).

Context and overall objectives:

Describe the context and overall objectives of your project and the project pathway to impact. The idea is to give a reader key background information for understanding the motivation behind the project and the problems and needs it aims to address.

After reading this section a reader should be able to understand how the results of the project are expected to contribute to tackling identified problems and needs given the particular political and strategic context. If possible include an indication of the scale and significance of the project's expected impacts. The description should be seen as "setting a scene for the story" of the project.

For projects under topics indicating the need for the integration of social sciences and humanities, please show the role of these disciplines in the project.

Work performed and main achievements:

Describe the activities performed and the main achievements. Please focus only on technical and scientific part, communication and exploitation activities will be mentioned in another section. For the final report, include the outcomes of the actions.

Results beyond the state of the art:

Please describe results and potential impacts indicatively - if applicable - identification of key needs to ensure further uptake and success (e.g. further research, demonstration, access to markets and finance, commercialisation, IPR support, internationalisation, supportive regulatory and standardisation framework, etc.). For the final report, include an overview of the results.

Policy relevant evidence of your project:

Please describe (if applicable) policy relevant evidence of your project. How the project outcomes can contribute to developing, strengthening or improving EU policy priorities. What are your main policy recommendations/ messages based on the project outcomes.

- Policy relevant evidence and outcomes are any data, information, (scientific) advice generated by the project which could strengthen and support policy makers in developing their policies, policy measures and the implementation thereof.
- Policy measures are diverse in nature such as the development of new legislation, revision of existing legislation, drafting and implementing Directives, development of new standards, new (financial and non-financial) support schemes , development of new strategies, drafting new HE calls, ...

Images attached to the Project Summary for Publication (if needed):

(1) RESEARCHERS INVOLVED IN THE PROJECT

PARTNER	NAME	SURNAME	GENDER	NATIONALITY	EMAIL	CAREER STAGE	ROLE OF RESEARCHER	ORCID	CONTRACT DURATION	LATEST DEGREE BEFORE ENTERING PROJECT / YEAR AWARDED / COUNTRY	LAST PROFESSIONAL POSITION (if any) BEFORE ENTERING PROJECT / STAGE / COUNTRY	PROFESSIONAL POSITION FOR STAFF MEMBERS LEAVING THE PROJECT / STAGE / COUNTRY
1-CTFC	Antonio	Ruano	Man	Spain	antonio.ruano@ctfc.cat	Category C1 - Recognised Researcher (Researcher / Assistant professor)	Team member	0000-0002-9684-1458	Temporary <2years	Doctorate 2019 Spain	Category C2 - Recognised Researcher (Post Doctoral researcher)	Choose an item.
1-CTFC	Elena	Gorriz	Woman	Spain	Elena.gorriz@ctfc.cat	Category C1 - Recognised Researcher (Researcher / Assistant professor)	Team member	0000-0002-2112-5780	Temporary >=2years	Doctorate	Choose an item.	Choose an item.
1-CTFC	Gianni	Picchi	Man	Spain	gianni.picchi@ctfc.cat	Category A - Top Grade Researcher (Full professor / Director of research)	Leading	0000-0002-1262-6778	Temporary >=2years	Doctorate	Choose an item.	Choose an item.

1-CTFC	José Ramon	González	Man	Spain	jr.gonzalez@ctfc.cat	Category A - Top Grade Researcher (Full professor / Director of research)	Team member	0000-0002-5040-712X	Temporary >=2years	Doctorate	Choose an item.	Choose an item.
1-CTFC	Míriam	Piqué	Woman	Spain	miriam.pique@ctfc.cat	Category A - Top Grade Researcher (Full professor / Director of research)	Team member	0000-0002-8935-2832	Temporary >=2years	Doctorate	Choose an item.	Choose an item.
1-CTFC	Míriam	Piqué	Woman	Spain	miriam.pique@ctfc.cat	Category A - Top Grade Researcher (Full professor / Director of research)	Team member	0000-0002-8935-2832	Temporary >=2years	Doctorate	Choose an item.	Choose an item.
2-MICRO	Nicola	Casarin	Man	Italy	Nicola.casarin@microtec.eu	Category D2 - Other First stage researcher	Team member	0000-0001-8079-6667	Choose an item.	Choose an item.	Choose an item.	Choose an item.
2-MICRO	Nicola	Pozzobon	Man	Italy	nicola.pozzobon@microtec.eu	Category B - Senior Researcher (Senior Researcher /	Team member	0000-0002-9674-0809	Choose an item.	Choose an item.	Choose an item.	Choose an item.

						Associate professor)						
2-MICRO	Enrico	Ursela	Man	Italy	Enrico.ursella@microtec.eu	Category A - Top Grade Researcher (Full professor / Director of research)	Leading	0000-0003-1295-391X	Choose an item.	Choose an item.	Choose an item.	Choose an item.
2-MICRO	Enrico	Vicario	Man	Italy	Enrico.vicario@microtec.eu	Category B - Senior Researcher (Senior Researcher / Associate professor)	Team member	0000-0002-4339-9563	Choose an item.	Choose an item.	Choose an item.	Choose an item.
3-BLUEB	Yamuna	Giambastiani	Man	Italy	Enrico.vicario@microtec.eu	Category C1 - Recognised Researcher (Researcher / Assistant professor)	Team member	0000-0002-3613-2975	Choose an item.	Choose an item.	Choose an item.	Choose an item.
3-BLUEB	Francesca	Giannetti	Woman	Italy	Francesca.giannetti@unifi.it	Category C1 - Recognised Researcher (Researcher / Assistant professor)	Team member	0000-0002-4590-827X	Choose an item.	Choose an item.	Choose an item.	Choose an item.
4-OTME	Bengt	Sorvik	Man	Sweden		Category A - Top Grade	Leading		Choose an item.	Choose an item.	Choose an item.	Choose an item.

					bengt.sorvik@otmetka.com	Researcher (Full professor / Director of research)						
5-SIMTRO	Simon	Stegel	Man	Slovenia	info@simtrona.si	Category A - Top Grade Researcher (Full professor / Director of research)	Leading	0000-0002-7942-9672	Choose an item.	Choose an item.	Choose an item.	Choose an item.
6-UNITBV	Stelian Alexandru	Borz	Man	Romania	info@simtrona.si	Category A - Top Grade Researcher (Full professor / Director of research)	Leading	0000-0003-4571-7235	Choose an item.	Choose an item.	Choose an item.	Choose an item.
6-UNITBV	Eugen	Iordache	Man	Romania	i.eugen@unitbv.ro	Category A - Top Grade Researcher (Full professor / Director of research)	Team member	0000-0001-5750-5243	Choose an item.	Choose an item.	Choose an item.	Choose an item.
6-UNITBV	Marina Viorela	Marcu	Woman	Romania	viorela.marcu@unitbv.ro	Category B - Senior Researcher (Senior Researcher / Associate professor)	Team member	0000-0001-5352-9686	Choose an item.	Choose an item.	Choose an item.	Choose an item.

6-UNITBV	Elena Camelia	Muşat	Woman	Romania	elena.musat@unitbv.ro	Category C1 - Recognised Researcher (Researcher / Assistant professor)	Team member	0000-0002-8943-984X	Choose an item.	Choose an item.	Choose an item.	Choose an item.
6-UNITBV	Mihai Daniel	Niţă	Man	Romania	mihai.nita@unitbv.ro	Category A - Top Grade Researcher (Full professor / Director of research)	Team member	0000-0002-6072-7784	Choose an item.	Choose an item.	Choose an item.	Choose an item.
7-INNO	Miklos	Kresz	Man	Hungary	miklos.kresz@innorenew.eu	Category A - Top Grade Researcher (Full professor / Director of research)	Team member	0000-0002-7547-1128	Choose an item.	Choose an item.	Choose an item.	Choose an item.
7-INNO	Anna	Sandak	Woman	Poland	anna.sandak@innorenew.eu	Category A - Top Grade Researcher (Full professor / Director of research)	Team member	0000-0002-2515-0991	Choose an item.	Choose an item.	Choose an item.	Choose an item.
7-INNO	Jakub	Sandak	Man	Poland	jakub.sandak@innorenew.eu	Category B - Senior Researcher (Senior	Leading	0000-0001-9190-677X	Choose an item.	Choose an item.	Choose an item.	Choose an item.

						Researcher / Associate professor)						
9-TREE	José Alejandro	Poveda	Man	Spain	jpoveda@treemetrics.com	Category D1 - First Stage Researcher (PhD student)	Leading	0000-0001-8726-2350	Choose an item.	Choose an item.	Choose an item.	Choose an item.
11-CNR	Tiziana	De Filippis	Woman	Italy	tiziana.defilippis@ibe.cnr.it	Category B - Senior Researcher (Senior Researcher / Associate professor)	Leading	000-0002-2945-5047	Choose an item.	Choose an item.	Choose an item.	Choose an item.
11-CNR	Leandro	Rocchi	Man	Italy	leandro.rocchi@ibe.cnr.it	Category B - Senior Researcher (Senior Researcher / Associate professor)	Team member	0000-0003-4613-8550	Choose an item.	Choose an item.	Choose an item.	Choose an item.
11-CNR	Chiara	Torresan	Woman	Italy	chiara.torresan@cnr.it	Category B - Senior Researcher (Senior Researcher / Associate professor)	Team member	0000-0003-4529-4615	Choose an item.	Choose an item.	Choose an item.	Choose an item.

12-ARBO	Johan	Ekenstedt	Man	Sweden	Johan.ekenstedt@arboreal.se	Category D1 - First Stage Researcher (PhD student)	Team member	0000-0001-6356-0732	Choose an item.	Choose an item.	Choose an item.	Choose an item.
14-LAMMA	Lorenzo	Bottai	Man	Italy	bottai@lamma.toscana.it	Category B - Senior Researcher (Senior Researcher / Associate professor)	Team member	0000-0003-1409-2244	Choose an item.	Choose an item.	Choose an item.	Choose an item.
14-LAMMA	Manuela	Corongiu	Woman	Italy	corongiu@lamma.toscana.it	Category B - Senior Researcher (Senior Researcher / Associate professor)	Leading	0000-0001-6351-4373	Choose an item.	Choose an item.	Choose an item.	Choose an item.
14-LAMMA	Simone	Cristofori	Man	Italy	cristofori@lamma.toscana.it	Category B - Senior Researcher (Senior Researcher / Associate professor)	Team member	0000-0001-6296-8242	Choose an item.	Choose an item.	Choose an item.	Choose an item.
14-LAMMA	Raffaella	Ferrari	Woman	Italy		Category B - Senior	Team member		Choose an item.	Choose an item.	Choose an item.	Choose an item.

					ferrari@lamma.toscana.it	Researcher (Senior Researcher / Associate professor)		0000-0003-3582-239X				
14-LAMMA	Stefano	Romanelli	Man	Italy	romanelli@lamma.toscana.it	Category B - Senior Researcher (Senior Researcher / Associate professor)	Team member	0000-0001-8103-7259	Choose an item.	Choose an item.	Choose an item.	Choose an item.
15-UEF	Frank	Berninger	Man	Germany	frank.berninger@uef.fi	Category A - Top Grade Researcher (Full professor / Director of research)	Team member	0000-0001-7718-1661	Choose an item.	Choose an item.	Choose an item.	Choose an item.
15-UEF	Ville	Kankare	Man	Finland	ville.kankare@uef.fi	Category B - Senior Researcher (Senior Researcher / Associate professor)	Team member	0000-0001-6038-1579	Choose an item.	Choose an item.	Choose an item.	Choose an item.
15-UEF	Kalle	Kärhä	Man	Finland	ville.kankare@uef.fi	Category A - Top Grade Researcher (Full professor	Team member	0000-0002-8455-2974	Choose an item.	Choose an item.	Choose an item.	Choose an item.

						/ Director of research)						
15-UEF	Blas	Mola	Man	Spain	blas.mola@uef.fi	Category B - Senior Researcher (Senior Researcher / Associate professor)	Leading	0000-0003-0286-0170	Choose an item.	Choose an item.	Choose an item.	Choose an item.
15-UEF	Ninni	Saarinen	Woman	Finland	ninni.saarinen@uef.fi	Category B - Senior Researcher (Senior Researcher / Associate professor)	Leading	0000-0003-2730-8892	Choose an item.	Choose an item.	Choose an item.	Choose an item.
15-UEF	Timo	Tokola	Man	Finland	timo.tokola@uef.fi	Category A - Top Grade Researcher (Full professor / Director of research)	Team member	0000-0001-5269-5308	Choose an item.	Choose an item.	Choose an item.	Choose an item.

(3) DELIVERABLES AND OTHER REPORTS

For each Deliverable, a single file (max 52MB) can be uploaded.

Add actual delivery dates (or new due date for late deliverables, together with an explanation for the delay). In the Comments, please indicate if the deliverable was achieved as planned or not.

The labels used mean:

- Public — fully open.
- Sensitive — limited under the conditions of the Grant Agreement.
- EU classified — RESTREINT-UE/EU-RESTRICTED, CONFIDENTIEL-UE/EU-CONFIDENTIAL, SECRET-UE/EU-SECRET under Decision 2015/444. For items classified under other rules (e.g. national or international organization), please select the equivalent EU classification level.

(4) LIST OF MILESTONES

List of all the Milestones with the foreseen delivery date and achieved check + further comments if needed.

(5) CRITICAL IMPLEMENTATION RISKS AND MITIGATION ACTIONS

At the end of each period beneficiaries should give the state of play of every risk identified in Annex 1 and if necessary, give new mitigation measures. Includes the already detected risk list with the following State of the Play information which need to be uploaded:

- Period.
- Did you apply risk mitigation measures?
- Did your risk materialise?
- Comments.

(6) PUBLICATIONS

Publications accessible via OpenAIRE are displayed automatically. You only need to check if the publications are linked to the project. In case of publications not registered via OpenAIRE, you need to encode the Digital Object Identifier (DOI) and all the rest of information is completed automatically.

The labels used mean:

Open access means online access to research outputs, in particular scientific publications and research data, free of charge to the end-user.

For each publication the following information need to be uploaded:

- Type.
- Title.
- Authors.
- Title of the Journal or equivalent.
- Number.
- Peer-reviewed.
- Was the publication available in open access through the repository at the time of publication.
- PID (publisher version of record).
- PID of deposited publication.

(7) RESULTS

Please provide details about project results. Please focus on the content of the results, for example discoveries and theories, products, services, methods etc. Publications, intellectual property rights, datasets, software, algorithms, protocols etc. will be linked to these results later in separate tables. It will also be possible to add these to the project as a whole.

Examples:

1. The project developed a new medical device, which is described in two publications and later patented. Instructions: List the medical device here (as 'PROD: Product') and link publications to this product in dedicated sections. When you have information about the patent application, link it in a dedicated section.

2. The project developed a new scientific theory which is described in several publications. Instructions: List the name and potential of the theory here (as 'SCI: Scientific discovery, model, theory') and add relevant publications later in dedicated sections.

3. The project develops a high potential industrial process and is currently at the stage of prototyping. Instructions: List the industrial process here (as 'PROC: Industrial process') and indicate the prototyping stage under 'Steps undertaken towards exploitation'. If there is a registered prototype, link the registered prototype in a dedicated section.

4. The project mainly focused on activities such as conferences, staff exchanges, or on investments in infrastructures. Instructions: List these as results and their potential here.

Please do not forget that you are obliged under the Grant Agreement to use the Horizon Results Platform to find interested parties to exploit your KERs if you have not been able to exploit them within one year after the end of the project (unless the obligation has been waived by the granting authority). Exploitation efforts must be continued up to four 4 years after the end of the project, even when the Horizon Results platform is used.

(8) DISSEMINATION ACTIVITIES

To include the list of the dissemination activities carried out in the context of the project. They can be already mentioned in the proposal or new ones. For each dissemination activity please include:

- Dissemination activity name.
- What? Type of dissemination activity.
- Who? Target audience reached.
- Why? Description of the objective(s) with reference to a specific project output (max 200 characters).
- Status of the dissemination activity.

(9) COMMUNICATION ACTIVITIES

Communication on projects is a strategically planned process that starts at the outset of the action and continues throughout its entire lifetime, aimed at promoting the action and its results. It requires strategic and targeted measures for communicating about (i) the action and (ii) its results to a multitude of audiences, including the media and the public and possibly engaging in a two-way exchange.

List the communication activities carried out in the context of the project. Use the same labels used in your DEC plan.

(10) STANDARDS

Not applicable for this project.

(11) INTELLECTUAL PROPERTY RIGHTS (IPR)

For each IPR declared, please fill:

1. Intellectual Property Right Type and Confidentiality:
    - Type of IP Right (Patent, Trademark, Registered Design, Utility Model, Other).
    - Confidentiality (Yes or No).
    - Application tittle.
    - Embargo End Date.
    - Application.
2. Application Reference for this IPR.
    - Prefix + Identifier. Please specify an Application for this IPR. You must indicate only one application or awarded patent for the very same IPR subject. You don't need to list more than one application or awarded patent if the same IPR subject is filed with multiple IPR authorities.

3. IPR Common Data.
    - Application title.
    - Application reference.
    - Date of application.
    - IPR owners: choose a beneficiary from the consortium + set IPR owners.
    - IPR Status. Has protection been awarded? (Yes / No / Not applicable).

(12) DATASETS

For each dataset please include:

- Description of Dataset.
- Typo of PID.
- PID.
- URL to Repository.
- Is this dataset available in open access?
- If data is needed to validate conclusions of a scientific publication, describe the provisions whereby you intend to make it available.
- Is the metadata of deposited data accessible through open access?

(13) IMPACT

1. Technology Readiness Level of the Project.

At project start	Choose an item.
Current status	Choose an item.
Expected by Project end	Choose an item.

2. Sustainable development goals.

Is your project likely to deliver results relevant for the following sustainable development goals?

Climate Neutrality	Choose an item.
Clean Water And Sanitation	Choose an item.
Life Below Water	Choose an item.
Life On Land	Choose an item.
No poverty	Choose an item.
Zero Hunger	Choose an item.
Good Health and Well-Being	Choose an item.
Gender Equality	Choose an item.
Decent Work and Economic Growth	Choose an item.
Affordable and Clean Energy	Choose an item.
Industry, Innovation and Infrastructure	Choose an item.
Reduced Inequality	Choose an item.

Sustainable Cities and Communities	Choose an item.
Responsible Consumption and Production	Choose an item.
Quality Education	Choose an item.
Peace and Justice Strong Institutions	Choose an item.
International Cooperation	Choose an item.

Please explain your choice:

3. Citizen Engagement

Regarding co-design and co-creation through the engagement of citizens, and/or end-user entities, how have citizens and end-user entities contributed to the co-creation of R&I content so far?

	Citizen	End-user entities
Co-creating R&I visions, agendas, policies or frameworks	☐	☐
Co-creating R&I action plans or technology roadmaps	☐	☐
Collecting data for the project	☐	☐
Analysing data for the project	☐	☐
Providing resources, e.g. computational, space/locations, practical support	☐	☐
Monitoring and/or evaluating R&I results	☐	☐
Testing & experimenting with innovative R&I solutions	☐	☐
Contributing to scientific publications or patent applications	☐	☐
Debating R&I findings and implications for them	☐	☐
Other (please specify):	☐	☐
Not applicable	☐	☐

What mechanisms for citizen and/or end-user entity engagement have you set up and plan to maintain beyond the end of your project, or are planning to set up and maintain beyond the end of your project (per beneficiary)?

Choose an item.

Department, centre, lab, network, testbeds or other structure or space set up, internally or externally, to support citizen/end-user engagement	☐

Institutional websites, web-pages or portals set up to support citizen/end-user engagement (excluding project website)	☐
Staff appointed with responsibility to initiate, monitor, evaluate or advise on citizen/end-user engagement	☐
Staff appointed with responsibility for training, mutual learning and sharing of tools and good practice on citizen/end-user engagement	☐
Rules, standards, guidelines or other frameworks established to ensure that citizen/end-user engagement is taken into account in institutional R&I processes	☐
Systematic or regular dialogues, meetings, workshops or other events set up for citizen/end-user engagement (excl.one-off events)	☐
Other:	☐
None	☐

Overall, how many individual citizens have been involved in co-creating R&I content for all activities listed? (please provide your best estimate, which should be traceable in one or more deliverables)

(14) Impact continuation

1. Progress towards objectives and impacts of the project

Please describe the progress of the project so far towards delivering scientific impact, based on its objectives, including quantification to the extent possible.

Please describe the progress of the project so far towards delivering economic impact, based on its objectives (e.g. to what extent will the project increase cost-effectiveness of industrial production or processes) including quantification to the extent possible:

Please describe the progress of the project so far towards delivering impact for society, including environmental impact, based on its objectives, including quantification to the extent possible:

2. Further employment to exploit or scale-up project results (only for Final Reporting)

Full-time equivalents expected to remain or be newly employed based on project's results and their dissemination/exploitation.

New/Existing contracts:	Involve existing team/people	Hire new team/people	Not sure yet ☐	No ☐

Short term contracts (incl. PHD):	Technicians:	Researchers:	Administrative support & project management:	Other:
Long term contracts:	Technicians:	Researchers:	Administrative support & project management:	Other:

Please explain:

3. Further investment mobilized to exploit or scale-up project results (only for Final Reporting)

Further investment expected:

Yes: ☐	Private / capital investment ☐	Public investment ☐	Own funds (may be more than one): ☐

4. Launch of a dedicated company during (or after end of) the project

Company:	Spin-off: ☐	Spin-out: ☐	Joint venture: ☐	Not sure yet: ☐	No: ☐

Please add as much companies as needed:

5. Identified further needs on the project's pathway to impact

Please tick if applicable:

Follow-up research	☐
Testing with end-users	☐
Demonstration in real-life environment	☐
Business plan development	☐
Access to risk capital & Scale-up funding	☐
Support for internationalisation and access to markets	☐
Legal advice (IPR or other)	☐
Partnership with other company (technology or other)	☐
Startup accelerator	☐
Supportive regulatory framework	☐
Standardisation	☐
Human resources & skills	☐
Procurement policies of the end users	☐

Other (specify):	☐

Please explain your choices if needed:

6. To what extent are the key factors identified below fostering the progress of the project so far? Please tick if highly relevant.

Scientific excellence of the consortium	☐
Geographic breath of the consortium	☐
Previous collaborations between partners	☐
Interdisciplinarity and cross-sectoral approach of project	☐
Integration of gender dimension in research content	☐
Involvement of social sciences and humanities in the project	☐
Strategic impact orientation of the project aligned to emerging needs	☐
Involvement of users from project design	☐
Management of intellectual & industrial property rights	☐
Collaboration with wider ecosystem beyond the project (e.g. financial intermediaries, public authorities, standardisation, regulatory bodies)	☐
Further funding secured to exploit project's results	☐
Validation of prototype by potential buyer/end-user	☐
Knowledge Triangle Integration	☐
Other (specify):	☐

Highlight any good practice learning from the project for improved implementation that might be transferable to other projects:

7. To what extent are the key factors identified below impeding to progress as initially planned. Please tick if highly relevant.

Difficulties in project implementation and management, including access to human resources, securing additional funding, IPR management, cooperation between partners	☐
Difficulties in engaging with wider environment, including potential end-users, citizen and policy makers	☐
Competitive pressures are evolving differently than planned	☐
Scientific and technological contexts are evolving differently than planned	☐

Socio-economic and policy context are evolving differently than planned	☐
Other factors external to the project impede to progress as expected	☐

Explain key difficulties faced for the implementation of the project and the problem-solving practices adopted or planned:

15. Other results

Type of result	Choose an item.
Description	
If the result is needed to validate the conclusions of a publication, briefly describe the provisions whereby you intend to make your output available, either in digital or physical form	Choose an item.
Type of Persistent Identifier, PID	Choose an item.
Insert PID reference (if available)	
Insert PID reference of the publication	
URL to repository landing page for the result service/webpage hosting the result (if available)	
What license is the result licensed under?	Choose an item.

* 'open access' means the practice of providing online access to research outputs resulting from actions funded under the Programme, in particular scientific publications and research data, free of charge to the end-user.