Deliverable 1.1

Project Management Plan

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Abstract: This document presents the Project Management Plan (PMP) of the HAIKU Project, complementing the project information provided in the Grant Agreement (GA) and its Annex I "Description of the action". In particular, it defines the quality assurance procedure and the strategy to keep risks under control and mitigate them. The GA Annex I will remain the contractual reference; the PMP provides additional details but never contradicts the GA.

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0.3	October 25th, 2022	Draft	Pozzi S. (DBL) Salvatori A. (DBL)	Review with minor comments
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1.0	October 27th, 2022	Final	Arrigoni V. (DBL)	Final version

List of Acronyms

Acronym	Definition
AD	Administrative Director
AI	Artificial Intelligence
CA	Consortium Agreement
CFS	Certificates on the Financial Statements
CR	Company Representatives
GA	Grant Agreement
EC	European Commission
HAIKU	Human AI teaming Knowledge and Understanding for aviation safety
LEPPI	Legal, Ethical, Privacy and Policy Issues Officer
MoM	Minutes of the Meeting
PC	Project Coordinator
PMP	Project Management Plan
TL	Task Leader
UC	Use Case
UCL	Use Case Leader
UAM	Urban Air Mobility
UTM	Urban Traffic Management
WP	Work Package
WPL	Work Package Leader

Table of Contents

Executive Summary

This document establishes a Project Management Plan (PMP) for the HAIKU Project and states the way in which the Project Management should coordinate the project activities.

The HAIKU project aims to pave the way for human-centric AI via the exploration of interactive prototypes in a wide range of aviation contexts. Its challenge is to deliver truly human-centric Digital Assistants, capable to "fit" the way humans work, where "Human-centric" means using a value-based design approach, bringing societal, value-based, ethical insights into the AI design. It means developing Intelligent Assistants that will understand not only the system knowledge that humans possess about a system, but the way operators contextualize that knowledge, becoming trustworthy 'digital colleagues'.

The PMP complements the project information provided in the Grant Agreement (GA) Description of Action and in the Consortium Agreement (CA). It establishes a framework for the project coordination team to effectively carry out all quality activities and monitor the project for actual and potential risks in order to avoid negative effects.

This document is divided in four sections and constitutes a Project Management guide for the Consortium. Besides providing an overview on the project and its objectives, it describes the organisation, roles and responsibilities of each consortium body. It also details the Project management plan, defining the quality principles, the work plan, the project management procedures, as well as the possible risks that may arise during the project's lifetime.

1 Introduction

1.1 Objective and scope of the document

This document presents the Project Management Plan (PMP) of the HAIKU Project. Its main objective is to present the principles and procedures that will be followed by the HAIKU Consortium to ensure compliance with the work plan and contractual obligations, thus the effective progress toward the achievement of the project goals.

This document informs the HAIKU Project Partners about the project's objectives and goals, its structure, activities, schedules, deliverables, responsibilities, risks and mitigation. It serves as a set of guidelines for the Partners to ensure optimal collaboration, efficiency and high-quality work, and compliance.

All the HAIKU Partners will use the rules, suggestions and standards as specified in these guidelines.

1.2 Document structure

This document is divided into four sections.

The current Section 1 is the introduction.

Section 2 provides an overview on the HAIKU Project, briefly describing its ambition, objectives, use cases and structure.

Section 3 provides an overview of the project organisation and main bodies.

The Project Management and Quality Plan is described in Section 4, representing the core part of this document. It states the quality principles, describes the work plan, and details the project management structure and procedures.

2   The Project

The HAIKU project aims to **pave the way for human-centric AI** via the exploration of interactive prototypes in a wide range of aviation context. Its challenge is to deliver **truly human-centric Digital Assistants**, capable to "fit" the way humans work, where "Human-centric" means using a value-based design approach, bringing societal, value-based, ethical insights into the AI design. It means developing Intelligent Assistants that will understand not only the system knowledge that humans possess about a system, but the way operators contextualize that knowledge, becoming **trustworthy 'digital colleagues'**.
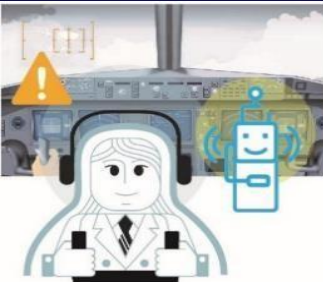
Three are the key research questions HAIKU will answer:

1. What is the recommended **human-AI relationship** for each of the different AI aviation applications?
2. What does it mean for AI to be explainable? Is **explainability** a necessary precondition of trustworthiness?
3. How do we best teach AI, via **human-in-the-loop AI learning** for each of the aviation applications?.

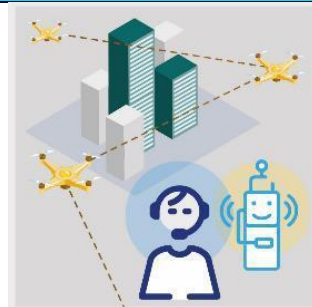To address these questions, HAIKU will pursue the following objectives:

● Deliver **prototypes of AI assistants** and demonstrate operational, human performance, and safety benefits;
● Design **human-machine teaming** for the different aviation applications to extend the system performance envelope, considering time-frame of operations, complexity, type of involved human tasks, criticality;
● Define the characteristics and strategy for AI **explainability**;
● Enable **continuous and incremental learning** in human-AI teams;
● Build a **trustful human-centric-AI**, addressing stakeholders 'acceptability and desirability, societal, liability and regulatory aspects, ethics.

HAIKU will pursue and achieve these objectives via the implementation of **six aviation use cases**, each of them requiring tailored AI concepts.

Use case #1 | Digital Assistant in the cockpit to assist in "startle response" adverse events

A Digital Assistant to help pilots to recover from startle and surprise effect proposing a collaborative way to mitigate consequences in several steps:

● A first phase during which the assistant acts as an adviser, supporting the pilots to overcome the first effects of a startling and surprising event (e.g. pushing pilots to execute basic tasks such as *aviate*.
● A second phase during which the assistant act as a team member and a monitoring partner, accompanying pilots in a structured decision-making process to get them back "in the loop".

Use case #2 | Digital Assistant in assist in route planning/replanning

A Digital Assistant to help pilots during complex situations by alleviating their cognitive resources involvement on secondary tasks and enable their focus on critical decision-making. It will facilitate the operators work without interfering or increasing their workload, perform adjacent tasks with success and provide adequate feedback, to keep the operator in the loop. HAIKU project proposition is to use a "Bidirectional Communicator" named COMBI (Bidirectional Communicator) between humans and intelligent systems to facilitate their dialogue.

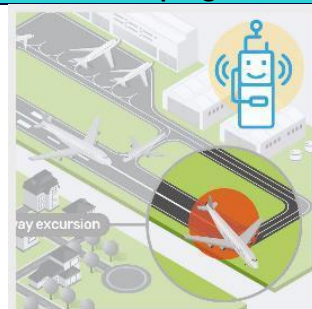| Use case #3 \| Digital Assistant for Urban Air Mobility to assist in traffic management |
|---|
| A Digital Assistant to support air traffic management operators in managing traffic expected to increase, in both terms of quantity and heterogeneity, in the near future. The use of a Digital Assistant, supporting the human, can grant increased levels of traffic being managed, as well as an increase in the safety of UTM by being able to (in parallel) monitor all traffic in the city airspace as well as monitoring ground events and city life with an impact on trajectory planning. |

Use case #4 | Digital Assistant for Tower (and remote tower) controllers to assist in routine and repetitive tasks for aircraft on approach
A Digital Assistant to aid air traffic controllers in a variety of tasks such as vacating and overflying the runway, allowing provision of new safety nets. It will improve air traffic controllers' situational awareness, supporting their decision-making process while reducing workload. Thus, it will enable a significant increase in both capacity and efficiency. Furthermore, the Digital Assistant will also be of help in detecting infringing aircrafts, allowing to tackle one of the EUROCONTROL Top 5 Safety Priorities (airspace infringements).

Use case #5 | Digital Assistant in the airport to assist safety experts in data analysis
A Digital Assistant to lead to better approaches to safety data collection, categorization, analysis and visualisation, so that airport operators can better learn from it. It will basically support them in learning from data collected across the airport, thus in understanding where future hotspots or safety 'pinch-points' might arise, with a view to staying one step ahead on airport safety.

Use case #6 | Digital Assistant in the airport to monitor risk factor conditions associated with indoor spread of infectious diseases
A Digital Assistant to support airport operators in implementing COVID-19 related rules and norms, and simulate the effect of potential control measures at the terminal, using AI based passenger flow behaviour. It will provide a quick view of the essential information on the risks in spreading COVID-19 at specific boarding gates, helping passengers plan a safe path towards their destination.

For a successful achievement of the project ambition, HAIKU is structured in **9 Work Packages** (WP) illustrated in Figure 1 and further described below.
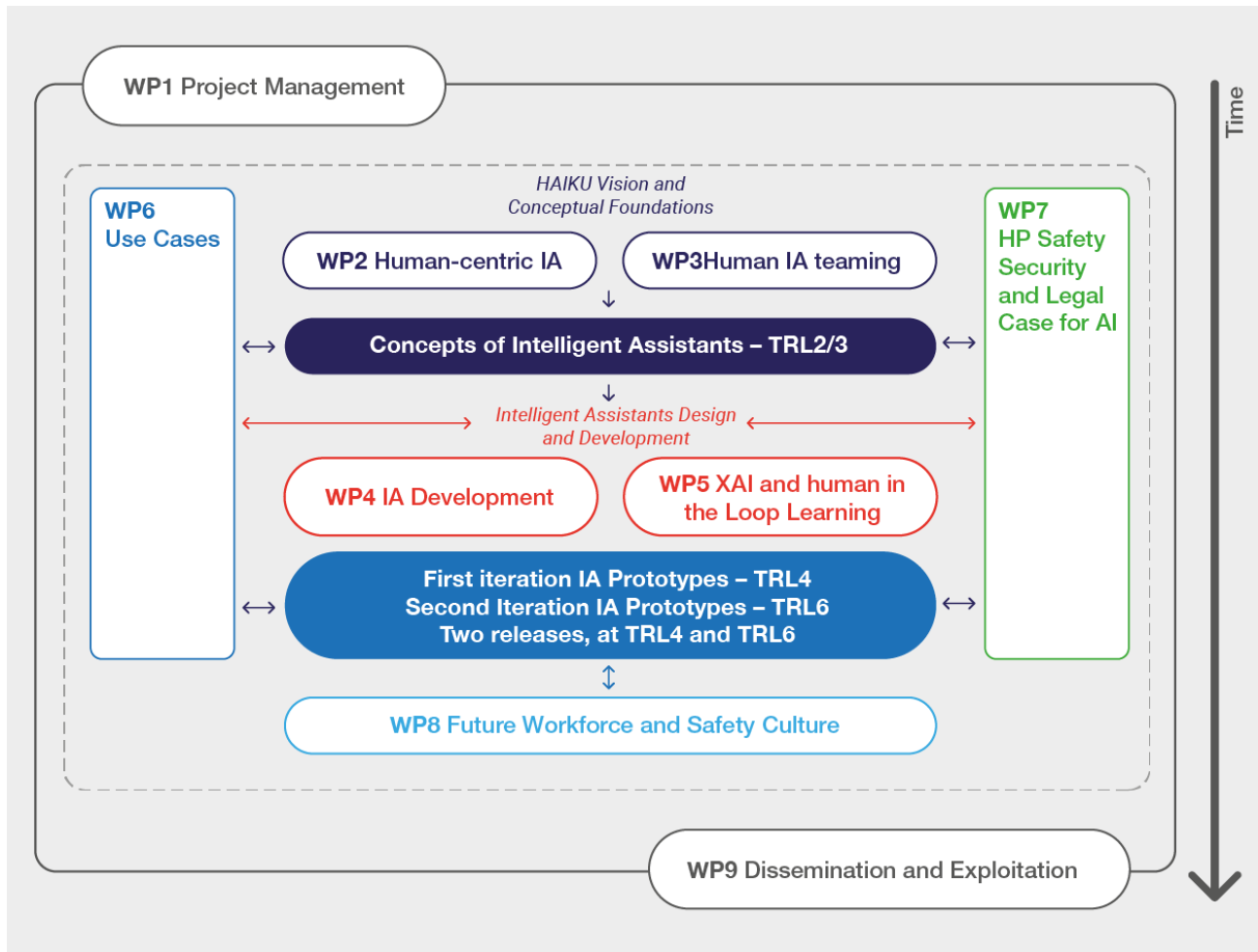
Figure 1: HAIKU Workflow - PERT Chart

WP1 "Project Management" supervises the project implementation, ensuring project compliance with EU rules and achievement of the project objectives within the agreed budget and timeframe. It also defines the Data Management policy, with regard to all the datasets that will be generated by the project, and monitors Social, Ethical, Legal and Privacy issues.

WP2 "Human-Centric Intelligent Assistance" aims to lay the foundations of trustful human-centric-Intelligent Assistance, addressing stakeholders' acceptability and desirability, societal, ethical, liability and regulatory aspects. It is a sort of a "service task" for the other WPs, with the twofold mission of providing the foundation for all the other WPs to build upon (vision, guiding principles, reference scenarios, societal impact analysis) and ensuring a coordinated and successful engagement of end-users and stakeholders.

WP3 "Human-AI Teaming" aims to develop Human Factors design guidance and methods ('HF4AI' Capabilities) for appropriate human-AI partnerships. It details the most fitting partnership, depending on the operational situation(s), Human-AI interaction modalities, HF benefits and issues, and technical enablers.

WP4 "Intelligent Assistance Development" is the main technological WP in HAIKU. Starting from Use Case requirements (WP6), relevant societal (WP2) and human-AI teaming (WP3) aspects, it proposes innovative AI-based prototype solutions in the above mentioned six use cases.

WP5 "Explainability in Human-AI Teaming" deep dives on explainability matters, aiming to identify human needs and requirements for XAI in each of the target use cases, to design of strategy, principles and

communication model for good XAI for each of the use cases, as well as to define a ad-hoc human-in-the-loop learning strategies.

WP6 "Case Studies Validations and Demonstrators" supports the work of the technical WPs (WP4, 5 and 7) by planning and running validation activities and demonstrations of prototype intelligent assistants in each use case.

WP7 "Safety, Security & Legal Case for AI" runs in parallel to the design and development of the Intelligent Assistants, collecting information to ensure safety and security, identification and mitigation of liability issues. It aims to develop new safety, standardisation, verification and validation methods for Digital Assistants, to facilitate early integration into aviation systems by aviation stakeholders and regulatory authorities. It also performs Human Factors, safety, security, liability and regulatory approach analysis for each Use Case, at the different maturity stages.

WP8 "Future Workforce & Safety Culture" aims to define the new skill-sets and training pathways for future aviation, as well as to explore impact on safety culture and make recommendations on safeguards to monitor and maintain it at its current high levels across the industry.

WP9 "Communication, Dissemination, and Exploitation" defines and implements a dissemination, communication and exploitation strategy aiming to maximise the project impact.

3   Organisation

The HAIKU Consortium is made of 17 high-profile European partners. They have been selected for their excellent skills on the topics relevant to the project implementation as well as their complementarity in order to provide the necessary knowledge, expertise, and state-of-the-art background required to ensure the success of the HAIKU project.

3.1   Consortium members

The consortium is well balanced in terms of partner profiles, with Large Industries (TAVS, ENG, EMBSA), SME (DBL, CHPR, Suite5), Research Centres (DFKI, CERTH, CATIE), Secondary or Higher education establishment (LiU, Bordeaux INP, ENAC), Airports (LLA), ANSPs (FerroNATS, LFV), International Organisations (ECTL) and Airlines (TUI Airways).

Table 1 summarises the list of partners, while the contact details are provided in Table 2.

Table 1: HAIKU Project Participants

N	Organization name	Short name	Country
1	DEEP BLUE SRL	DBL	IT
2	EUROCONTROL - EUROPEAN ORGANISATION FOR THE SAFETY OF AIR NAVIGATION	ECTL	BE
3	FERRONATS AIR TRAFFIC SERVICES SA	FerroNATS	ES
4	CENTER FOR HUMAN PERFORMANCE RESEARCH BV	CHPR	NL
5	LINKOPINGS UNIVERSITET	LiU	SE
6	THALES AVS FRANCE SAS	TAVS	FR
7	INSTITUT POLYTECHNIQUE DE BORDEAUX	Bordeaux INP	FR
8	CENTRE AQUITAIN DES TECHNOLOGIES DEL'INFORMATION ET ELECTRONIQUES	CATIE	FR
9	DEUTSCHES FORSCHUNGSZENTRUM FUR KUNSTLICHE INTELLIGENZ GMBH	DFKI	DE
10	ENGINEERING - INGEGNERIA INFORMATICA SPA	ENG	IT
11	LUFTFARTSVERKET	LFV	SE
12	ECOLE NATIONALE DE L AVIATION CIVILE	ENAC	FR
13	SUITE5 DATA INTELLIGENCE SOLUTIONS LIMITED	SUITE5	CY
14	EMBRAER SA (+ AIRHOLDING S.A.)	EMBSA	BR/PT
15	ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS	CERTH	EL
16	LONDON LUTON AIRPORT OPERATIONS LIMITED	LLA	UK
17	TUI AIRWAYS LIMITED	TUI	UK

Table 2: HAIKU Partners contact details

N	Organization	Point of Contact	Contact details
1	DBL	Simone Pozzi	simone.pozzi@dblue.it
		Vanessa Arrigoni	vanessa.arrigoni@dblue.it
2	ECTL	Barry Kirwan	barry.kirwan@eurocontrol.int
3	FerroNATS	Miguel Villegas Sanchez	mvillegas@serveo.com
4	CHPR	Brian Hilburn	brian@chpr.nl
5	LiU	Carl Westin	carl.westin@liu.se
6	TAVS	Jaime Diaz Pineda	jaime.diazpineda@fr.thalesgroup.com
7	Bordeaux INP	Jean-Marc Andre	jean-marc.andre@ensc.fr

8	CATIE	Florian Larrue	f.larrue@catie.fr
9	DFKI	Alain Pagani	alain.pagani@dfki.de
10	ENG	Gabriele Giunta	gabriele.giunta@eng.it
11	LFV	Billy Josefsson	billy.josefsson@lfv.se
12	ENAC	Jean-Paul Imbert	jean-paul.imbert@enac.fr
13	SUITE5	Fenareti Lampathaki	fenareti@suite5.eu
14	EMBSA	Ricardo José Nunes Dos Reis	rjreis@embraer.fr
15	CERTH	Vassilis Kappatos	vkappatos@certh.gr
16	LLA	Ryan Elliott	ryan.elliott@ltn.aero
17	TUI	Andy Lauretani	andrew.lauretani@tui.co.uk

3.2   Advisory Boards & Ethical Committee

The HAIKU Advisory Board complements the consortium with other industry and stakeholders representatives. The current Advisory Board members are listed in Table 3. The Advisory Board is open, therefore new members may join it during the project duration.

Table 3: Advisory Board members

Type of member	Organization	Representative
Policy Maker & Regulator	European Union Aviation Safety Agency (EASA) - *Third Party to DBL*	Luc Tytgat *Strategy and Safety Management Director*
Industry	EVE Air Mobility	Liza Josias *Human Factors and Stakeholder Engagement Lead*
	Venice and Treviso Airports	Alberto Torresan *Information and Communication Technology Director at SAVE S.p.A.*
	IDS AirNAV	Giuseppe Di Bitonto *ATM and Airport Systems expert*
	EGNATIA AVIATION	George Triantafyllidis *Business Development & Facilities Management Director*
Associations	European Cockpit Association (ECA)	Otjan de Bruijn *ECA President*
	Italian Professional Association of Air Traffic Controllers (ANACNA)	Oliviero Bersanti *ANACNA President*
	European Passengers' Federation (EPF)	Willy Smeulders *EPF Board member*
Research	Institut Carnot Cognition	Celestin Sedogbo *General Manager*
	Italian Research Council (CNR)	Daniele Caligiore *Senior Researcher*
	University of Birmingham	Christopher Baber *Professor at School of Computer Science - Chair of Pervasive and Ubiquitous Computing*

HAIKU is also supported by an Ethical Committee which will help monitoring and supervising all ethical aspects. The Ethical Committee members are listed in Table 4.

Table 4: Ethical Committee members

Name	Organization
Andreas Theodorou | *Research Fellow*	Umeå University
Antonio Landi | *Research Fellow*	Istituto Italiano per la Privacy e la valorizzazione dei dati
Giovanni Sartor | *Professor of Legal Informatics and Legal Theory*	University of Bologna & European University Institute
Giuseppe Contissa | *Senior Researcher*	University of Bologna
Valentina Pagnanelli | *PhD candidate*	University of Florence, Department of Legal Sciences

3.3   Governing bodies

The Project Governance structure is explained hereafter.

Project Coordinator (PC)

The main responsibility of the PC is to ensure the timely and effective overall progress of the project. The PC, appointed by the coordinating partner will chair the General Assembly and the Executive Board, and has primarily the following roles:

- Interface between the consortium and the EC, dealing also with contractual, administrative and financial matters in addition to overall responsibility for project progress reporting. Timely circulation of respective information and communications. The PC will communicate with the European Commission on behalf of the consortium;
- Organisation of Plenary, Progress and Update meetings, project reviews and coordination of dissemination events;
- Management of risks and implementation of mitigation strategies when necessary;
- Quality control of all the documentation produced by the project;
- Guidance for all of the technical activities outlined in the project's work plan and implement the day-to-day liaison between consortium partners to consolidate inputs into project planning, progress monitoring and technical milestone reporting;
- Furthermore, PC will act as Legal, Ethical, Privacy and Policy Issues Officer (LEPPI) to monitor and deal with ethical issues during the whole duration of the project.

DBL is the HAIKU PC.

Project Financial/Administrative Director (AD)

The AD will ensure that the project is completed according to the administrative requirements specified in the contract and within the approved budget. The coordinating partner DBL will assume this task and dedicate the adequate effort based on the needs of the project. AD main responsibilities consist of: Finance implementation, coordination of cost and finance reporting, and budget allocation monitoring.

Work Package Leaders (WPL), Task Leader (TL) and Use Case Leaders (UCL)

The WPLs are the partners responsible for WPs. It is responsible for coordinating and ensuring suitable progress of technical activities involved in the WP. This includes planning and control of the activities within the WPs, quality check of activities, preparation of deliverables and collection of partners' contributions, reporting of progresses and issues to the PC and the whole Consortium. The TL is covered by the partners responsible for Tasks and involves coordinating and ensuring suitable progress of technical activities involved in the Task, aligning with and reporting to the WPL.

Table 5: HAIKU WPs and WP Leaders

WP n.	WP Name	WP Leader
1	Project Management	DBL
2	Human-Centric Intelligent Assistance	DBL
3	Human-AI Teaming	CHPR
4	Intelligent Assistance Development	TAVS
5	Explainability in Human-AI Teaming	DFKI
6	Case Studies Validations and Demonstrators	LiU
7	Safety, Security & Legal Case for AI	DBL
8	Future Workforce & Safety Culture	ECTL
9	Communication, Dissemination, Exploitation	CERTH

The UCLs are the partners responsible for the Use Cases, responsible for coordinating the activities related to the use case, in alignment and coordination with the WP4 Leaders. The UCLs can raise important issues and propose solutions to the WP4 Leaders and the PC, but does not have a decision-making capacity.

Table 6: HAIKU Use Cases and UC Leaders

UC n.	UC Name	UC Leader
1	Digital Assistant in the cockpit to assist in "startle response" adverse events	ENAC
2	Digital Assistant in assist in route planning/replanning	TAVS
3	Digital Assistant for Urban Air Mobility to assist in traffic management	LiU
4	Digital Assistant for Tower (and remote tower) controllers to assist in routine and repetitive tasks for aircraft on approach	FerroNATS
5	Digital Assistant in the airport to assist safety experts in data analysis	ENG
6	Digital Assistant in the airport to monitor risk factor conditions associated with indoor spread of infectious diseases	CERTH

Company Representatives (CR)

This position is covered by a representative for each partner of the consortium. Each CR will be responsible for addressing all the issues related to the relation between the CR's company and the project, in particular all contractual matters such as internal financial adjustments. Each representative will interface with WPL and PC with respect to the technical activities and external communication. To keep the structure as simple and effective as possible and to reduce the number of meetings, whenever possible and acceptable for the partner organisations, the CR will coincide with the WPL.

4 Project Management Plan

This Chapter describes the HAIKU Project Management Plan, defining the quality and management principles and procedures to be used throughout the HAIKU project. In particular, it defines a set of guidelines for the organisation of the day-to-day cooperative work of project partners, including the procedures to be used, the reporting mechanisms, the organisation of meetings, and the preparation of documentation for submission to the EC.

4.1 Quality principles

The HAIKU management is based on several quality principles that are important in inter-organisational collaboration:

1. **Collaboration**: The HAIKU Partners will collaborate and cooperate, share their experiences, know-how and network in order to achieve a common objective;
2. **Result-driven plan**: The HAIKU work will be organised in a result-driven way. Each partner will be responsible for its internal organisation and planning, but the overall consortium workflow will be driven by a common plan which will be always up-to-date;
3. **Joint-decision making**: The collaboration between participants will be based on consensus and joint decision-making;
4. **Periodic meetings and reviews**: The HAIKU Consortium will meet periodically in order to ensure consistency of WPs activities, and quality and timeliness of work.

The success, quality and feasibility of HAIKU is strictly dependent on the effectiveness of the collaboration between the Partners. Therefore, all the Partners must understand and use the rules, suggestions and standards as specified in this document.

4.2 Work Plan

HAIKU has started on September 1st, 2022 and will last 36 months. The project work plan is shown in the GANTT Chart in Paragraph 4.2.1.

The monitoring and coordination of the work plan is under the PC responsibility. The WPLs are responsible for the schedule within their WPs. The WPLs must communicate with the Coordinator in case any problems or delays rise during the project timeline.

At month 18, the HAIKU project will provide the reporting on activities and resources, and any deviations from the original work plan will be explained and justified in the periodic reports. The PC will revise the GANTT chart accordingly, updating it with actual effort reported, actual month of submission of the deliverables and main project meetings that took place.

4.2.1 GANTT

HAIKU — Project timeline (Gantt chart)

Task	Description	Start	End
WP1 - Project Management			
T1.1	Project planning, coordination and control	M1	M36	(M2 * D1.1)
T1.2	Project Quality Assurance	M1	M36
T1.3	Financial Management	M1	M36
T1.4	Knowledge & Data management	M1	M36	(M4 * D1.2)
T1.5	Social, Ethical, Legal, Privacy issues identification and monitoring	M1	M36	(M4 * D1.3)
T1.6	Innovation and IP management	M1	M36	(M35 * D1.4)
WP2 - Human-Centric Intelligent Assistance (IA)			
T2.1	Vision for Human-Centric Intelligent Assistance	M1	M4
T2.2	Definition of reference forward-looking scenarios	M1	M6	(M6 * D2.1)
T2.3	Analysis of Societal Impact	M5	M36
T2.4	Engagement with end-users and stakeholders	M7	M36	(M18 * D2.2; M35 * D2.3)
WP3 - Human-AI Teaming (HAIT)			
T3.1	State of the Art Review	M1	M2
T3.2	Monitoring of Human Performance	M1	M6
T3.3	Human-AI Teaming Framework and Design Document	M2	M6	(M6 * D3.1)
T3.4	Intelligent Assistants concepts	M4	M8	(M8 * D3.2)
T3.5	HAIT Validation Methods	M5	M9	(M9 * D3.3)
WP4 - Intelligent Assistance Development			
T4.1	User technical requirements	M4	M12	(M12 * D4.1; M24 * D4.1 2nd release; M36 * D4.1 3rd release)
T4.2	Design of the HAIKU Intelligent Assistance architectures	M7	M24	(M24 * D4.2; M36 * D4.2 2nd Release)
T4.3	HMI design and development	M7	M30
T4.4	Data collection and analysis	M7	M30
T4.5	AI engine development and training	M7	M36	(M18 * D4.4; M24 * D4.3, D4.4 2nd Release & D4.5; M36 * D4.5 2nd release)
WP5 - Explainability in Human-AI Teaming			
T5.1	Strategy for XAI in aviation	M1	M12	(M12 * D5.1)
T5.2	Communication Models for XAI in Human-AI Teaming	M13	M30
T5.3	Validation of XAI Strategies and Communication Models	M13	M36	(M24 * D5.2; M36 * D5.2 2nd Release)

Timeline header:
- Year1 (2022–2023): M1 Sep, M2 Oct, M3 Nov, M4 Dec (2022); M5 Jan, M6 Feb, M7 Mar, M8 Apr, M9 May, M10 Jun, M11 Jul, M12 Aug (2023)
- Year2 (2023–2024): M13 Sep, M14 Oct, M15 Nov, M16 Dec (2023); M17 Jan, M18 Feb, M19 Mar, M20 Apr, M21 May, M22 Jun, M23 Jul, M24 Aug (2024)
- Year3 (2024–2025): M25 Sep, M26 Oct, M27 Nov, M28 Dec (2024); M29 Jan, M30 Feb, M31 Mar, M32 Apr, M33 May, M34 Jun, M35 Jul, M36 Aug (2025)

Milestones: Milestone1 (M8 – Apr 2023), Milestone2 (M18 – Feb 2024), Milestone3 (M24 – Aug 2024), Milestone4 (M36 – Aug 2025)

HAIKU	Start	End	Timeline	Deliverables
WP6 - Case Studies Validations and Demonstrators				
T6.1	Scenario design for each use case	M6	M10	
T6.2	Refine operational concepts of IA in each use cases	M8	M12	* D6.1
T6.3	Validation Strategy and Plan	M10	M12	
T6.4	First Validation (VAL1)	M12	M18	* D6.2
T6.5	Finalize operational concepts of IA in each use case	M18	M20	
T6.6	Update Validation Strategy and Plan	M18	M24	* D6.3
T6.7	Second Validation (VAL2)	M24	M33	* D6.4
WP7 -Safety, Security & Legal Case for AI				
T7.1	State of the art and regulatory landscape	M4	M24	* D7.1 / * D7.1 2nd Release
T7.2	Acceptable Means of Compliance for Intelligent Assistants	M7	M36	
T7.3	Safety, Security and Human Factors analysis	M10	M36	* D7.2 / * D7.2 2nd Release, D7.3
T7.4	Legal case and liability by design	M10	M36	* D7.4
T7.5	Guidance and ways forward for performance-based and risk-based regulation	M25	M36	* D7.5
WP8 - Future Workforce and Safety culture				
T8.1	Review the State of the Art in aviation selection and aptitude testing, training and licensing	M2	M33	
T8.2	Outline the likely evolution in staffing processes	M7	M30	
T8.3	Understand the evolution of the human role	M13	M36	* D8.1
T8.4	Support skilling/upskilling/reskilling processes	M28	M36	* D8.2
T8.5	New training tools and methods	M28	M36	* D8.3
T8.6	State of the art of safety culture in aviation	M1	M6	
T8.7	Safeguarding safety culture in future AI-assisted aviation	M7	M36	* D8.4
WP9 - Dissemination, communication, and exploitation				
T9.1	T9.1 Dissemination, planning, execution and review	M1	M36	* D9.2 / * D9.3
T9.2	T9.2 Communication planning and execution	M1	M36	* D9.1
T9.3	T9.3 Engagement and collaboration	M1	M36	
T9.4	T9.4 Exploitation planning and execution	M1	M36	* D9.4

Figure 2: GANTT Chart

4.2.2   Milestones

Table 7: HAIKU List of milestones

N	Name	Related WP(s)	Due date		Means of verification
1	Concepts of Digital Assistant for each of the use cases	2-3-6	M18	Feb 2024	D3.2
2	First version of Digital Assistants for low TRL use cases	4-5-6	M18	Feb 2024	D4.4
3	High fidelity prototypes available	4-5-6	M24	Aug 2024	D4.5
4	Validated Digital Assistants and Guidance Documents	3-4-5-6-7-8	M36	Aug 3035	Final Digital Assistants released WP7 guidance validated with stakeholders

4.2.3   Deliverables

Table 8: HAIKU List of deliverables. Deliverables in italic are updates of the initial version

N	Name	WP	Lead part.	Type	Dissemin. level	Due date	
D1.1	Project Management Plan	1	DBL	Report	Public	M2	Oct 2022
D1.2	Data Management Plan	1	DBL	Report	Public	M4	Dec 2022
D1.3	Social, Ethical, Legal, Privacy issues identification and monitoring (initial)	1	DBL	Report	Public	M4	Dec 2022
D1.4	Social, Ethical, Legal, Privacy issues identification and monitoring (final)	1	DBL	Report	Public	M36	Aug 2025
D2.1	Vision and scenarios	2	DBL	Report	Public	M6	Feb 2023
D2.2	Analysis of Societal Impact	2	DBL	Report	Public	M18	Feb 2024
D2.3	Guidance on socially acceptable AI	2	DBL	Report	Public	M36	Aug 2025
D3.1	Human-AI Teaming Framework and Design Document	3	LiU	Report	Public	M6	Feb 2023
D3.2	Human-AI Teaming Validation Framework	3	DBL	Report	Public	M8	Apr 2023
D3.3	Human-AI Teaming Validation Framework	3	CHPR	Report	Public	M9	May 2023
D4.1	Operational, system/technical requirements	4	CHPR	Report	Sensitive	M12 *M24* *M36*	Aug 2023 *Aug 2024* *Aug 2025*
D4.2	Intelligent Assistance architectures	4	TAVS	Report	Sensitive	M24 *M36*	Aug 2024 *Aug 2025*
D4.3	AI Model performance report	4	DFKI	Report	Public	M24	Aug 2024
D4.4	Low fidelity prototypes	4	DFKI	Report	Public	M18 M24	Feb 2024 *Aug 2024*

D4.5	High fidelity prototypes	4	TAVS	Report	Sensitive	M24 *M36*	Aug 2024 *Aug 2025*
D5.1	Strategy for XAI in aviation	5	DFKI	Report	Public	M12	Aug 2023
D5.2	Case studies and results of validation activities	5	DFKI	Report	Public	M24 *M36*	Aug 2024 *Aug 2025*
D6.1	First validation strategy and plan	6	LiU	Report	Public	M12	Aug 2023
D6.2	First validation report (VAL1) and demonstrator (DEM1)	6	ENAC	Report & Demonstrator	Public	M18	Feb 2024
D6.3	Updated validation strategy and plan	6	LiU	Report	Public	M24	Aug 2024
D6.4	Second validation report (VAL2) and demonstrator (DEM2)	6	LiU	Report & Demonstrator	Public	M33	May 2025
D7.1	State of the art in safety, Human Factors, and security (SHS) assurance processes in aviation	7	DBL	Report	Public	M6 *M24*	Feb 2023 *Aug 2024*
D7.2	Development of Saf, HF and Sec approaches for HIAS	7	DBL	Report	Public	M12 *M36*	Aug 2023 *Aug 2025*
D7.3	Validation of the SHS case-based approach in case studies	7	ECTL	Report	Public	M36	Aug 2025
D7.4	Recommendations for liability by design	7	DBL	Report	Sensitive	M30	Feb 2025
D7.5	SHS case guidance and ways forward for performance-based and risk-based regulatory frameworks	7	ECTL	Report	Public	M36	Aug 2025
D8.1	The Human Role in future aviation	8	DBL	Report	Public	M12	Aug 2023
D8.2	The transformation map	8	DBL	Report	Public	M18	Feb 2024
D8.3	Guidance on future workforce requirements	8	ECTL	Report	Public	M36	Aug 2025
D8.4	Guidance on safety culture enhancements for future aviation WIA systems	8	ECTL	Report	Public	M36	Aug 2025
D9.1	HAIKU project website	9	CERTH	DEC	Public	M3	Nov 2022
D9.2	HAIKU Dissemination, Comm and Exploitation Plan	9	CERTH	Report	Public	M5	Jan 2023
D9.3	Interim report: Dissemination and Communication	9	CERTH	Report	Public	M18	Feb 2024
D9.4	Final report: Diss., Comm., and Exploitation	9	CERTH	Report	Public	M36	Aug 2025

4.2.4   Partners effort

The summary of partners' effort is available in Table 9.

Table 9: Partners effort

Partner		WP1	WP2	WP3	WP4	WP5	WP6	WP7	WP8	WP9	Total Person/Months per Participant
1	DBL	12	12	6	6	0	4	18	18	5	81
2	ECTL	1	8	1	0	1	3	10.5	9.5	2	36*
3	FerroNATS	1	1	1	6	0	38	0	0	1	48
4	CHPR	2	3	8	5	3	9	2	1	1	34
5	LiU	2	5	5	12	7.5	16	2	3	5	57.5
6	TAVS	2	4	6	62	6	11	0	0	2	93
7	Bordeaux INP	1	2	5.5	9.5	2	11.5	0	0	1	32.5
8	CATIE	0	2	4	6	2	8	0	0	1	23
9	DFKI	2	8	8	34	18	12	2	2	3	89
10	ENG	2	6	6	41	4	11	4	0	4	78
11	LFV	1	0	0	0	0	4	2	4	1	12
12	ENAC	1	2	2	25	1	18	1	2	4	56
13	SUITE5	1	2	2	14	15	11	0	0	2	47
14	EMBRT/EMBSA	1	3	5	11	6	9	8	1	1.5	45.5
15	CERTH	2	5	2	20	0	28	3	2	22	84
16	LLA	1	0	1	2	0	4	0	1	0	9
17	TUI	1	0	1	2.5	1	2.5	1	1	0	10
Total PM		**33**	**63**	**63.5**	**256**	**66.5**	**200**	**53.5**	**44.5**	**55.5**	**835.5**

Pending requested amendment

4.3   Meetings

Periodical meetings will be performed with the aim to monitor and discuss the status of the project.

4.3.1   Types of meetings

There are five types of meetings summarised in Table 10.

Table 10: Types of meetings

Type	Participants	Goal	Frequency	Duration	Attendance
Plenary meeting	PC + All Partners	To co-ordinate and monitor the Project work progress	Yearly	2/3 days	In presence
Progress meeting	PC + WPLs	To monitor the work of different WPs	Every 6 months	1.5/2 days	In presence
Update meeting	1to1 PC+WPL	To monitor the progress of each WP	Monthly	30 min	Virtual
Technical meeting	WPL + Partners	To focus the work within each WP	*Each WPL defines frequency, duration and type of attendance according to WP needs. Suggested frequency: monthly*		

	involved in the WP		
Use Case meeting	UCL + Partners involved in the UC	To coordinate the activities within each UC	*Each UCL defines frequency, duration and type of attendance according to UC needs. Suggested frequency: monthly*

Attention will be paid to travel costs, leveraging on video conferences and attempting to combine them with key events that HAIKU partners plan or may have an interest in participating in.

4.3.2 Partners responsibilities

The hosting partner should give information related to arrival and departure times and, where appropriate, suggest recommended hotels. The hosting partner is responsible for the coffee breaks, lunches and dinners' organisation taking into account special dietary requirements. A call link will be created when possible to facilitate the participation of people who cannot join physically.

The PC has the responsibility of contributing to the definition of meeting objectives, preparation of decisions, agenda and minutes.

The PC is the chairperson for Plenary, Progress and Update meetings; WPLs are the chairperson for Technical meetings; UCL are the chairperson for Use Case meetings.

Agendas and minutes will be prepared and shared by the chairperson of the meeting and shall be made available to all consortium members.

Each participant to a meeting should contribute to the meeting preparation by providing in advance to the meeting:

- Contributions to the agenda;
- Preparation of presentations;
- Working documents: normally the main subjects discussed during a meeting will be documented by discussion papers or presentations. As far as possible, these means should be distributed in advance and not during the meeting itself, since otherwise the participants will be unable to prepare for the meeting;
- Feedback on the minutes in case of disagreement;
- Execution of actions and respect of decisions.

4.3.3 Meeting Agenda

Each meeting must have an agenda. The draft agenda should be distributed in advance, to inform participants about the topics to be discussed and to give them the opportunity to suggest changes to the final agenda, which must then be re-circulated.

The chairperson shall prepare and send each Member of that Consortium Body a written (original) agenda no later than the minimum number of days preceding the meeting:

- Plenary meeting: 45 calendar days for ordinary meetings, 15 calendar days for extraordinary ones;
- Progress meeting: 14 calendar days for ordinary meetings, 7 calendar days for extraordinary ones;
- Technical & UC meeting: 7 calendar days for ordinary meetings, 2 calendar days for extraordinary ones;
- Update meeting: 2 calendar days, if needed.

Each agenda must contains some standard subjects with the following structure:

1. Type of meeting
2. List of participants
3. Place
4. Date
5. Objectives of the meeting and agreement about the agenda
6. Schedules

During a meeting this agenda can be modified by adding items if necessary, or by removing items for time management.

4.3.4 Minutes of the Meeting (MoM)

Particular attention must be given to the follow-ups of the meeting; send the minutes quickly, check commitment on decisions and actions with absent partners, ensure that decisions are respected and actions executed.

The chairperson is in charge of the minutes. S/he can appoint a person to produce written minutes, which shall be the formal record of what was discussed during the meeting. The minutes shall be sent to all project members (preferably within 10 calendar days of the meeting). The minutes shall be considered as accepted if no one sends an objection (within 7 calendar days from receiving them).

The minutes will therefore constitute a sort of "pocket handbook" with all the data that each of the participants will always have to keep an eye on.

The minutes will reflect major issues that have been discussed. All minutes of periodic meetings will have the same structure. Minutes should contain the following information:

1. Date
2. Location
3. Author
4. Participants
   Objective of the meeting (brief)
5. Actual agenda
6. Summary of discussion (if relevant)
7. Decision
8. Open issues
9. Action
10. Place and date of the next meeting (if applicable)

MoM involving the EC shall also be distributed via email for review by the EC officer. For all meetings involving the EC, the EC shall be asked to review the minutes before their approval.

4.4 Decision procedures

The general principle will be to try to achieve decisions by informal means and consensus, using formal procedures such as voting only when essential. All decisions that can have an impact on project progress (whether reached formally or not) will be documented for clarity and common understanding within the Consortium.

The HAIKU Consortium recognises that the resolution of problems and conflicts must be handled systematically. Establishing a good working relationship and fruitful collaborations among project team members will be a pre-requisite for the quick resolution of problems and issues.

Conflicts will have to be resolved at the lowest possible level; those that cannot be solved will be taken through a "principled negotiation" process that is focused on optimising outcomes and maximising the

benefits of all parties involved. Additionally, specific decisions and corresponding voting procedures are defined in the Consortium Agreement.

4.5   Cooperative Working Environment

HAIKU uses Google Drive as a collaborative platform procured and administered by DBL.

Google Drive contains functionalities for sharing files and collaborative authoring of documents, with file versioning. Using Google Drive enables secure storage for project assets during the entire project. By reducing dependency on email for communication, active use of Google Drive will ensure that project history is accessible to any future project members, whenever they may be introduced to the project. The use of Google Drive will be managed at WP level.

All public documents will be stored in Google Drive. For all sensitive information and documents, the Consortium has decided, on the basis of specific partners' requests, to use a different plan called CryptoBox. Cryptobox will be procured and administered by TAV.

4.6   Internal Communication

Electronic Mail (e-mail), telephone and conferencing tools will be used for interpersonal communication.

For email communication, the project mailing list is available on Google Drive. For all email communications, it is recommended to use explicit subject title (e.g. HAIKU – WPN – Short description of the contents).

DBL offers Google Meet and WebEx as teleconferencing tools.

4.7   Documents production guidelines

4.7.1   Logo and Copyright

Each HAIKU document must contain:

- The HAIKU Logo (a set of HAIKU logos in different resolutions is available on Google Drive);
- The EC Logo;
- Reference to the Horizon funding Programme and to the Grant Agreement number;
- The HAIKU Copyright.

4.7.2   Templates

All the HAIKU documents will have a standard template. Both the PowerPoint and Word templates are available on Google Drive.

This guideline does not apply to the dissemination materials which will be produced by a graphic designer in order to raise the impact of project' outcomes.

4.7.3   Coding

Each document circulating within the HAIKU Project will be filed with a unique code.

The code for deliverables is defined as follows: *HAIKU – Dx.y_Deliverable Title_vn.m*, where:

- *x.y* is the deliverable number (x = WP number; y = reference of the deliverable stated in Table 8);
- *Deliverable title* is the title stated in Table 8;

- *vn.m* is the document version;

The code for the presentation is defined as follows: *HAIKU – Meeting/Event ref._Title_vn.m*.

The code for the agenda and the MoM is defined as follows: *HAIKU – Meeting ref._Agenda/MoM_ Place_Date_vn.m*.

For the other type of documents (e.g. working documents) the code is defined as follows: *HAIKU – WPn_Title_vn.m*.

4.7.4   Review and versioning

Deliverables and reports are subjected to an approval process.

The leader of the document has to circulate it for comments among the interested partners. Upon receiving the comments by the specified deadline, the leader of the document will address the comments received and amend the document accordingly. The process will be traced both in the number of the document version and in the History of document section.

The review will concern both the contents and the form of the document. The entire process could require up to 45 days allowing for various feedback loops between the document leader and reviewers. The suggested schedule for deliverables and reports preparation is the following.

- 45 days before deadline: document leader to define and share the document structure and the expected contributions;
- 30 days before deadline: document leader to produce an initial draft version (inclusive of required contributions) and circulate it among contributors for comments;
- 23 days before deadline: peer reviewers to provide comments and request changes;
- 15 days before deadline: document leader to address and implement all comments and change requests received and to produce a consolidated version to be considered the final document. This version has to be sent to the PC for final quality check;
- 7 days before deadline: PC to provide feedback. Additional reiterations may be done if necessary. At the same time, peer reviewers will check that all the comments and change requested have been addressed;
- 2 days before deadline: document leader to provide the final version of the document to the PC for final approval.
- Once the deliverable is ready, the PC will submit it through ECAS.

After the submission, each deliverable will undergo the EC assessment. Any feedback and comments provided by the EC will be addressed and an updated version will be produced and submitted. If there are no further change requests, the document will be officially approved.

This schedule is recommended and document leaders are encouraged to adhere to it. However, the timing of specific review stages can be changed if previously agreed between the document leader and the corresponding reviewers.

4.8   Reporting

The submission of periodic reports is covered by the Grant Agreement Article 21.

The action is divided into the following Reporting Periods (RP):

- RP1: from month 1 to month 18;
- RP2: from month 19 to month 36.

The coordinator must submit a periodic report within 60 days following the end of each reporting period.

Each beneficiary must submit to the coordinator in good time the financial statements and if required, Certificates on the Financial Statements (CFS) and their contribution to the technical reports.

Each WPL should submit a WP Report to the PC, who assembles the parts and elaborates the Technical Report.

The PC must submit to the EC the technical and financial reports, including when needed the requests for payment and must be drawn up using the forms and templates provided by the EC.

4.9 Risk management

The following main critical risks related to the implementation have been identified and are listed with the relevant mitigation measures in Table 11.

Table 11: Critical risks for implementation

Risk description	WP	Proposed risk-mitigation measures
Too large consortium, too much coordination required Probability: High Consequence: Medium	WP1	Each Use Case has a Lead and an AI provider. The project can run on parallel strands.
Digital Assistants concepts do not address the needs of end users Probability: Low Consequence: High	WP2-3	Involvement of end users since the very beginning, continuous consultation with external stakeholders.
The performance of Digital Assistants is not the required one Probability: Medium Consequence: High	WP4	Several validation activities, to constantly refine the development. Two validation cycles for Digital Assistants starting at low TRLs.
Datasets to train the Digital Assistants are not adequate Probability: Medium Consequence: High	WP4	Early coordination between data providers and AI tech experts.
Human-in-the-loop training does not improve the Digital Assistant performance Probability: Low Consequence: High	WP5	Availability of end users to repeat the training. Availability of different strategies for human-in-the-loop training.
Validation facilities become not available Probability: Low Consequence: High	WP6	HAIKU Partners have access to a number of different simulation facilities
Assurance methods do not capture relevant issues Probability: Low Consequence: High	WP7	Use of state-of-the-art techniques and availability of expertise for customization
Impossible to define future roles Probability: Low Consequence: High	WP8	Input from different stakeholders and domain experts Use of structure brainstorming methods

References

HAIKU Grant Agreement

HAIKU Consortium Agreement