PROJECT DELIVERABLE REPORT

NAIADES

Greening the economy in line with the sustainable development goals

D1.1: PROJECT HANDBOOK

A holistic water ecosystem for digitisation of urban water sector

SC5-11-2018

Digital solutions for water: linking the physical and digital world for water solutions

"This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 820985"

Document Information

Grant Agreement Number	820985	Acronym	NAIADES
Full Title	A holistic water ecosystem for digitization of urban water sector		
Topic	SC5-11-2018: Digital solutions for water: linking the physical and digital world for water solutions		
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EU Project Officer	Alexandre VACHER		
Project Coordinator	CENTER FOR RESEARCH AND TECHNOLOGY HELLAS - CERTH		
Deliverable	**D1.1 Project Handbook**		
Work Package	WP1 – Project Management		
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Lead Beneficiary	CERTH		
Responsible Author	Dr. Dionysis Bochtis	Email	d.bochtis@certh.gr
		Phone	+302421096744
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Revision History

Version	Date	Responsible	Description/Remarks/Reason for changes
0.10	29/07/2019	CERTH	Deliverable structure set-up (A.Anagnostis, G.Banias)
0.11	08/08/2019	CERTH	Report write-up (A.Anagnostis, G.Banias)
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0.22	20/08/2019	KT	Review and comments by Nikos Angelopoulos
0.23	20/08/2019	AMAEM	Review and comments by Ignacio Casals del Busto
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1.1	31/05/2021	CERTH	Corrections addressing PO's comments after RP1
1.2	21/06/2021	IHE, AIMEN, UDGA	Internal Review
1.3	30/06/2021	CERTH	Final review and corrections
2.0	30/06/2021	CERTH	Review and Release

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Abbreviations

DoA - Description of Action	ID - Identifier
EC - European Commission	ISO - International Organization for Standardization
H2020 - Horizon 2020	Mx - Month x
No. - Number	PC - Project Coordinator
PMO - Project Management Office	TBD - To Be Decided
QAM - Quality Assurance Manager	WP - Work Package
STM - Scientific and Technical Manager	GA- Grant Agreement
CA- Consortium Agreement	WE- Water Ecosystem
PC- Project Coordinator	QCB- Quality Control Board
QA- Quality Assurance	PB- Plenary Board
QP- Quality Plan	SIB- Scientific & Innovation Board
IM- Innovation Manager	DCM- Document Control management

RP1 review comments and responses

PO's comments		Response
Shortcomings	1) Title is not on the front page	The title of the Deliverable is now included in the first page.
	2) The report does not clarify the frequency of boards meeting and their reporting modality, nor where can reports from the QCB, the End-user advisory group; scientific & innovation board be found.	The new management structure is presented in subsection 5.1, where the main responsibilities of each board are described along with their meetings' frequency. In addition, the reporting modality of these meetings as well as the platform where the reports will be uploaded are highlighted in subsection 5.2.
	3) The report does not clarify how the risk matrix will be updated.	The procedure under which the risk matrix will be updated is explained in more detail in the last paragraph of Chapter 9.
Recommendations	The risk matrix included needs to be updated, for instance, on data access issues.	The risk matrix (Table 9.2) has been updated by clarifying the risks' probability and the impact that data access issues can bring upon the project.

1 Summary

This deliverable focuses on the structure of a Project Handbook as a guideline for the project's good practices. It contains information regarding management, organization structures, financial obligations, standards and templates, obligations between the consortium and towards the European Commission, document control and more. This is to be used as a guideline alongside the Grant Agreement (GA) and the Consortium Agreement (CA) for the proper flow of the project throughout its duration.

2 Introduction

2.1 Purpose and Scope

The purpose of the present deliverable entitled "Project Handbook" is to identify the procedures, the metrics and the supporting documents that need to be appropriately established in order to assure the quality of the project's deliverables and project management activities.

In this context, the present deliverable aims to fulfil the following main objectives:

- To establish a quality management system in accordance with the ISO 9001 (Quality Management Systems - Requirements) standard [1] [2].
- To assure the quality of the project's deliverables and project management activities.
- To identify the quality responsibilities of all partners within the consortium.
- To ensure proper co-ordination and communication channels among partners during the project's lifetime.
- To identify the potential risks of the project and to evaluate their impact and exposure.
- To proactively design risk elimination methods in order to guarantee the seamless and proper execution of the project's tasks.

Moreover, the present document will be revisited regularly to ensure the relevance of the quality plan through the execution and especially when contractual changes occur.

This quality and risk management plan mainly addresses the consortium partners who are obliged to comply with its requirements.

2.2 Structure of the Document

The structure of this document is as follows:

- Section 3 presents general information regarding the project itself and the consortium.
- Section 4 describes the legal aspects concerning the project and the partner's obligations.
- Section 5 describes the project's management structure procedures.
- Section 6 presents the deliverables and relevant information.
- Section 7 presents the communication strategy that will be followed.
- Section 8 describes the reporting procedures of the project.
- Section 9 presents the risk management plan.
- Annex I refers to the relevant bibliography and references.
- Annex II presents the deliverable document template.
- Annex III outlines the presentation template for all presentations under the NAIADES scope.
- Annex IV provides the meeting agenda template.
- Annex V presents the meeting minutes' template.
- Annex VI provides the internal audit report template.

3 General Project Information

3.1 Consortium

The Consortium consists of eighteen (18) partners from ten (10) European countries. All partners have high innovation capabilities related to the NAIADES objectives in the scientific, technological and business scenarios addressed. More specifically, five (5) SMEs (KT, ADSYS, DISY, IBA & GT) and one (1) LE (SIVECO) guarantee the robustness of the consortium, providing industrial and enterprise know-how for

the definition of scenarios, use cases, the elicitation of requirements, the design of the overall NAIADES architecture, the constitution of new business models, the identification of criteria for automated evaluation of automated and smarter water services and operational properties, utilising novel ICT methods and technologies. Furthermore, the end-user partners will allow the realisation of the NAIADES pilot use cases over their IT assets and facilities, leading deployment, monitoring and control of local infrastructures, as well as the validation and the cost-effectiveness demonstration of NAIADES technologies in offline simulations and real-time operation during the pilots. Nine (9) Academia and Research partners (CERTH, MI, UDGA, AIMEN, ICCS, JSI, IHE, VUB & EUT) embed state-of-the-art knowledge on innovative NAIADES technologies while bringing novel tools (at TRL levels up to 6), covering several of the different aspects comprising the integrated NAIADES framework, such as a wide set of AI algorithms tailored to system specifications and requirements/framework used for advanced process and improved Water Ecosystem (WE) operations, and detailed cost vs benefit comparative studies by using advanced business modelling toolsets. Being closely related to the selected pilot sites, they will play an active role during the pilot use case demonstration and evaluation. Furthermore, SMEs will introduce innovating tools and services that will compose a holistic security and privacy toolkit for smart water management, accessible and user-friendly, while providing support to the overall NAIADES deployment, integration and validation towards transforming the heterogeneous sensors and smart water technologies into a robust, automated and smarter water resource management and environmental monitoring, achieving a high level of water services, and finally hosting NAIADES pilots.

Table 3.1: Consortium's partners

Part no.	Participant organization name	Participant short name	Country	Type organization
1	Centre for Research and Technology-Hellas	CERTH	GR	RI
2	KONNEKTABLE Technologies Ltd	KT	IE	SME
3	Mandat International	MI	CH	RI
4	UDG Alliance	UDGA	CH	RI
5	Asociación de investigación metalúrgica del noroeste	AIMEN	ES	RI
6	Institute of Communication and Computer Systems	ICCS	GR	RI
7	Jozef Stefan Institute	JSI	SI	RI
8	Advantic Sistemas y Servicios S.L.	ADSYS	ES	SME
9	SIVECO Romanian SA	SIVECO	RO	LE
10	Disy Informations Systeme GmbH	DISY	DE	SME
11	IHE Delft Institute for Water Education	IHE	NE	RI
12	IBATECH Tecnología S.L.	IBA	ES	SME
13	Guardtime AS	GT	EE	SME
14	Vrije Universiteit Brussel	VUB	BE	UNI
15	Eurecat Technology Centre	EUT	ES	RI

End-users				
16	Aguas Municipalizadas de Alicante, Empresa Mixta	AMAEM	ES	LE
17	S.C. Compania de Utilitati Publice Dunarea Braila S.A	CUP	RO	LE
18	Ville de Carouge	CAR	CH	AUTH

4 Legal Aspects

4.1 Grant Agreement

The legal basis for the implementation of the project is formed by the Grant Agreement. Its structure is as follows:

- Terms and Conditions (this is the core contract);
- Annex 1 Description of the action
- Annex 2 Estimated budget for the action
  - 2a Additional information on the estimated budget
- Annex 3 Accession Forms
- Annex 4 Model for the financial statements
- Annex 5 Model for the certificate on the financial statements
- Annex 6 Model for the certificate on the methodology

Even though the main contract is signed between the Coordinator of the project and the EU, all partners signed the Accession Forms and they have become individual contract partners with the commission.

The Grant Agreement has to be applied by all partners and should be delivered to the auditor in case an audit must take place. It can be downloaded in the participant portal, from the document library of the NAIADES project.

4.2 Consortium Agreement

Although the Grant Agreement is signed between the partners and the EU, the Consortium Agreement is separately signed between the partners. It thoroughly determines everything that can be provided by the Grant Agreement, which for instance are: payments, management, financial issues, decision making, intellectual property rights, conflict resolution and liability. In addition, the Consortium Agreement has to be kept by the partners and has to be presented in case a demand of audits is raised.

4.3 Amendments

Throughout the project, it is possible that a call for a request to the EU for an amendment of the Grant Agreement may arise under several conditions. Causes should differ, but the most prevailing could be:

- Change of legal entity;
- Change of partner(s);
- Changes in the Budget (EU GA: Annex 2);
- Changes in the DoA (EU GA: Annex 1).

In case a demand for an amendment is raised, such a request shall be submitted by the coordinator, after an independent decision by all partners in the General Assembly. When the request is approved, the revised Grant Agreement shall be distributed to the partners by the Coordinator, by replacing former versions. The consortium itself is responsible for taking care any change of the budget that does not affect the content of

DoA; decide through the General Assembly and inform the Project Officer. Amendments shall be requested by any of the partners who participate in the project.

5 Management Structure Procedures

The general management structure of the NAIADES project is summarized in Figure 5.1.

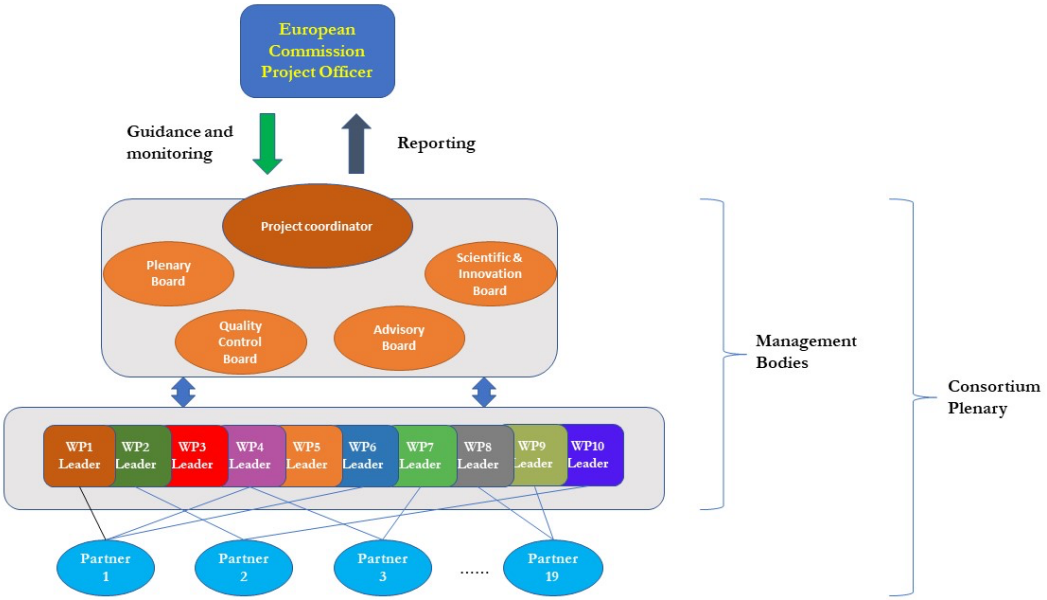

Figure 5.1: Management Organization Structure of NAIADES Project

The day-to-day activities of the NAIADES project will be monitored by the following key members:

- The **Project Coordinator** (PC) will be ***Dr Dionysis Bochtis*** of CERTH
- The **Scientific & Technical Manager** (STM) will be ***Dr Juan Manuel Fernández Montenegro*** of AIMEN
- The **Innovation Manager** (IM) will be ***Dr Leonardo Alfonso Segura*** of IHE
- The **Pilot Manager** (PEM) will be ***Mr Ignacio Casals Del Busto*** of AMAEM
- The **Exploitation Manager** (EP) will be ***Mr Jose De las Heras*** of ADSYS
- The **Dissemination & Communication Manager** (DCM) will be ***Dr Sebastien Ziegler*** of MI
- The **Interoperability and Standards Manager** (ISEM) will be ***Mr Gabriel Anzaldi Varas*** of EUT
- The **Social, Human and Ethical Manager** (SSHEM) will be ***Professor Vagelis Papakonstantinou*** of VUB
- The **Quality Assurance Manager** (QAM) will be Dr Aristotelis Tagarakis of CERTH

The people that are mentioned above, in conjunction with the Quality Control Board have to report to the Plenary Board and to constantly overview as well. Moreover, they have to lead and guide scientific developments, technical work-packages, and to tackle any technical issues that may arise for all WPs, by providing technical mitigation strategies. The most important factor of the project activities will be the close collaboration between the beforementioned people on a daily basis. Even so, their roles are distinct but complementary.

Project Coordinator

The project Coordinator is in charge of the efficient management of the project and the individual activities with respect to budget, time and quality. In addition, his purpose is the facilitation of the communication between the European Commission and the co-beneficiaries.

5.1 Management bodies

NAIADES management structure is comprised of the management bodies listed in Table 5.1.

Table 5.1: List of **NAIADES management bodies**.

Board	Members	Partner
Plenary Board	Project Coordinator (Chair of Board)	CERTH
	Leader of WP1	CERTH
	Leader of WP2	IHE DELFT
	Leader of WP3	ADSYS
	Leader of WP4	AIMEN
	Leader of WP5	JSI
	Leader of WP6	ICCS
	Leader of WP7	KT
	Leader of WP8	SIMAVI
	Leader of WP9	MI
	Leader of WP10	CERTH
Quality Control Board	Project Coordinator	CERTH
	Scientific & Technical Manager	AIMEN
	Quality Assurance Manager	CERTH
	End-user's representative	AMAEN
	End-user's representative	CAR
	End-user's representative	CUP
	Standards' expert	EUT
Scientific & Innovation Board	Scientific & Technical Manager	AIMEN
	Innovation Manager	IHE
	Dissemination & Communication Manager	MI
	Exploitation Manager	ADSYS

	External advisor (academia)	Lydia Vamvakeridou[1]
	External advisor (academia)	Joan García[2]
	External advisor (academia)	Carlos Alberto Arias[3]
Advisory Board	Social Science & humanity expert	VUB
	Water governance/ water management representative	Roberto di Bernardo[4]
	Expert on technology commercialisation	Dimitrios Moshou[5]

Plenary Board

The Plenary Board (PB) is the superior and core decision body of the project, which meetings are led by the Project Coordinator once every 3 months, and consists of the work package leaders, who are all major Contractors that represent all types of Partners (industrial & scientific). The main responsibilities of the PB is the supervision of the project's progress and decision-making upon all relevant technical and administrative issues. In addition, dedicated meetings concerning the Workpackages (WPs) will be held every three months. The membership of the Plenary Board is permanent throughout the project, unless they are willing to leave the Plenary Board or due to an EU intervention.

Quality Control Board

The QCB will be accountable for the co-ordination and supervision, concerning the implementation of the measures for the QA. The project's Quality Management Plan will be prepared according to the contractual agreements, by defining the organizational structure, flow of quality system and quality management procedures. The QCB's structure is as follows: **(i)** *the PC and STM Manager*, **(ii)** *the QAM*, **(iii)** *a User's Representative* and **(iv)** *a person in charge of standards*. The members of QCB will hold meetings on biweekly basis. The revision of specific deliverables and reports can be carried out not only from the above members, but also from other internal members, who can be appointed by the QCB. Senior researchers of at least three project partners are appointed by the QCB for this role, as they are extensively experienced on the subject of the specific deliverable. Of course, its authors should not be appointed for such role.

Scientific and Innovation Board

The structure of the Scientific & Innovation Board (SIB) is comprised of the Scientific & Technical Manager, the Innovation Manager (IA), the Dissemination & Communication Manager, the Exploitation Manager, and other external advisors as well. The core responsibilities of this panel are: **1)** supervising the development of the products related to the project in the market, **2)** identifying the rapidly changed market needs, **3)** making all the necessary updates of the main project's goals in order to follow the constant market changes and **4)** creating annual reports regarding the existing market, how the project is associated with them and the new decisions/arrangements taken by the group and the consortium in order to achieve

[1] *KWR Water Research Institute, the Netherlands*

[2] *GEMMA-Group of Environmental Engineering and Microbiology, Department of Civil and Environmental Engineering, Universitat Politècnica de Catalunya-BarcelonaTech, Spain*

[3] *Department of Biology, Aarhus University, Denmark*

[4] *Engineering Ingegneria Informatica S.p.A., Italy*

[5] *Department of Hydraulics, Soil Science and Agricultural Engineering, Aristotle University of Thessaloniki, Greece*

innovative results. In order to enhance the monitoring of the products related to the project in the market, as well as their evolution within the project, three external advisors, all experts in water systems, treatment, management and governance, have been appointed as members of the SIB. The structure of this board is illustrated in Table 5.1. SIB members will meet once per year in order to examine the innovative goals of NAIADES in comparison with the current status of the market.

Advisory Board

The Advisory Board (AB) is responsible for maximizing the user's influence on project development at all levels. The members which comprise the restructured AB are **(i)** *social science and humanity expert,* **(ii)** *water governance/ water management representative, and* **(iii)** *an expert on technology commercialisation.* The members of this Board will convene meetings once every three months.

Project Management Office

The **Project Management Office (PMO)** will consist of four Groups and Services. The Financial Control will supervise the Annual Cost Statements. The **Secretariat** will organize workshops, project meetings and reviews, as well as arrange central equipment provision, new partners inclusion, etc. The **External relations** will receive all requests sent from external sources (e.g. questions regarding the project's concept and results through the Internet, relation to the Media and the Press), including follow-up concentration activities with other projects and activities of relatable standardization bodies. Finally, a **Helpdesk** will provide various kinds of assistance in the managerial level when required.

Quality Plan

The main aim of the Quality Plan (QP) is to represent the measures and the actions that will be carried out by the Consortium, in order to guarantee the quality of the project and its complete conformance with its described requirements. The QP will be issued in accordance to the ISO-9001 standard. Some of the goals of the QP are: **i)** provide a guide to the stakeholders for the required actions by each one involved, **ii)** ensure the project's quality plan according to the contractual requirements and **iii)** determine which deliverables will be reviewed by which internal members of the Quality Control Board (QCB).

Workpackage Leaders

WP Leaders will organize their WPs, in conjunction with Task Leaders among them, by scheduling technical meeting for their WPs. WPs Leaders will be in contact frequently with the PC and QAM.

5.2 Meetings reporting procedure

The corresponding chair of each meeting is responsible for reporting the main outcomes after its completion. More specifically, the chairperson will draft a document containing information about **i)** list of partners that took part in the meeting, **ii)** decisions taken during the meeting, **iii)** an action list including a short description, and **iv)** a list of documents/references related to the meeting. The draft will be circulated to all members that participate in order to approve the report. The final version will be sent to the Project Coordinator and uploaded to the project management platform utilized in NAIADES project, where it can be accessible from the project's partners.

6 Deliverables

6.1 Deliverable list

The list with the numerical order of deliverables is shown in Table 6.1.

Table 6.1: List of deliverables.

Del No	Deliverable Title	WP No	Lead Participant	Type	Dissemination level	Delivery date	Reviewers
D1.1	Project Handbook	WP1	CERTH	*R*	*PU*	M3	IHE, AIMEN, UDGA
D1.2	Scientific and Innovation Roadmap	WP1	AIMEN	*R*	*PU*	M6	GUARDTIME, ICCS, CERTH
D1.3	Scientific Roadmap and innovation management Evaluation	WP1	AIMEN	*R*	*PU*	M36	JSI, AMAEM, CERTH
D1.4	NAIADES Data Collection & Ethical Plan	WP1	VUB	*R*	*PU*	M9	ADSYS, EURECAT, CERTH
D1.5	Ethical HelpDesk Reports - Mid-term	WP1	VUB	*R*	*PU*	M3	UDGA, ICCS, CERTH
D1.6	Ethical HelpDesk Reports - Final	WP1	VUB	*R*	*PU*	M36	CERTH, CAR, AIMEN
D1.7	Data Management Plan	WP1	CERTH	*R*	*PU*	M6	VUB, IHE, AIMEN
D1.8	Recommendations for Data Policy	WP1	CERTH	*R*	*PU*	M9	DISY, KT, AIMEN
D1.9	NAIADES IPR Plan & IPR Management	WP1	CERTH	*R*	*CO*	M36	VUB, UDGA, AIMEN
D2.1	Smart Water Services Digest and Trend Analysis	WP2	IHE	*R*	*PU*	M9	MI, GUARDTIME, CERTH
D2.2	Water Management landscape analysis	WP2	IHE	*R*	*PU*	M6	ICCS, MI, AIMEN
D2.3	Gap Analysis of the Existing SDG and EU Framework for Smart Water Management	WP2	MI	*R*	*PU*	M6	CUP, GUARDTIME, IHE
D2.4	Assessment of Policies on Water Distribution Management	WP2	VUB	*R*	*PU*	M12	GUARDTIME, CERTH, IHE
D2.5	NAIADES requirements and guidelines – Mid-term	WP2	IHE	*R*	*PU*	M18	JSI, CERTH, AIMEN
D2.6	NAIADES requirements and guidelines – Final	WP2	IHE	*R*	*PU*	M30	IBATECH, CERTH, AIMEN
D2.7	Use Cases definition and requirements document – Mid-term	WP2	AMAEM	*R*	*PU*	M18	IBATECH, EURECAT, IHE

D2.8	Use Cases definition and requirements document - Final	WP2	AMAEM	*R*	*PU*	M30	IBATECH, AIMEN, IHE
D2.9	NAIADES Architecture – Mid-term	WP2	IHE[6]	*R*	*PU*	M18	KT, ADSYS, AIMEN
D2.10	NAIADES Architecture – Final	WP2	IHE[1]	*R*	*PU*	M30	IHE, ICCS, CERTH
D3.1	Data Harmonization Framework and Tool – Mid-term	WP3	DISY	*R*	*PU*	M16	JSI, ICCS, ADSYS
D3.2	Data Harmonization Framework and Tool – Final	WP3	DISY	*R*	*PU*	M28	EURECAT, AIMEN, ADSYS
D3.3	Catalogue of water monitoring solutions and design of water monitoring sensor platform	WP3	IBATECH	*R*	*PU*	M6	IBATECH, KT, ADSYS
D3.4	Integrable water monitoring sensor platform – Mid-term	WP3	IBATECH	*R*	*PU*	M16	MI, AIMEN, ADSYS
D3.5	Integrable water monitoring sensor platform – Final	WP3	IBATECH	*R*	*PU*	M28	IBATECH, SIMAVI, ADSYS
D3.6	NAIADES Data Fusion Middleware – Mid-term	WP3	ADSYS	*R*	*PU*	M16	IBATECH, MI, AIMEN
D3.7	NAIADES Data Fusion Middleware – Final (including APIs)	WP3	ADSYS	*R*	*CO*	M28	UDGA, IBATECH, CERTH
D3.8	NAIADES Data Fusion Middleware – Final (report)	WP3	ADSYS	*R*	*PU*	M28	SIMAVI, AIMEN, CERTH
D3.9	NAIADES IoT Platform - Mid-Term	WP3	UDGA	*R*	*PU*	M16	SIMAVI, AIMEN, ADSYS
D3.10	NAIADES IoT Platform – Final	WP3	UDGA	*Other*	*CO*	M28	CERTH, EURECAT, ADSYS
D3.11	NAIADES IoT Platform – User Manual	WP3	UDGA	*R*	*PU*	M28	ICCS, CUP, ADSYS
D3.12	NAIADES Communication Platform – WMS – Mid-term	WP3	SIMAVI	*R*	*PU*	M16	ICCS, JSI, ADSYS

[6] To be changed to AIMEN upon GA ammendment

D3.13	NAIADES Communication Platform – WMS - Final	WP3	SIMAVI	*R*	*CO*	M28	ADSYS, IBATECH, CERTH
D4.1	Report on NAIADES Urban Water models – Mid-term	WP4	IHE	*R*	*PU*	M18,	SIMAVI, DISY, AIMEN
D4.2	Report on NAIADES Urban Water models – Final	WP4	IHE	*R*	*PU*	M30	AMAEM, CAR, AIMEN
D4.3	Report on NAIADES Water Quality models – Mid-term	WP4	AIMEN	*R*	*PU*	M18	ADSYS, SIMAVI, CERTH
D4.4	Report on NAIADES Water Quality models – Final	WP4	AIMEN	*R*	*CO*	M30	UDGA, CERTH, EURECAT
D4.5	Environmental monitoring toolkit– Mid-term	WP4	IBATECH	*R*	*PU*	M18	ICCS, ADSYS, AIMEN
D4.6	Environmental monitoring toolkit - Final	WP4	IBATECH	*R*	*CO*	M30	KT, CERTH, AIMEN
D4.7	AI empowered critical water consumption monitoring toolkit– Mid-term	WP4	JSI	*R*	*PU*	M18	MI, DISY, AIMEN
D4.8	AI empowered critical water consumption monitoring toolkit– Mid-term	WP4	JSI	*R*	*CO*	M30	IHE, AIMEN, CERTH
D4.9	NAIADES AI-Water Quality Monitoring & Dynamical Water Treatment – Mid-term	WP4	AIMEN	*R*	*PU*	M18,	UDGA, KT, CERTH
D4.10	NAIADES AI-Water Quality Monitoring & Dynamical Water Treatment - Final	WP4	AIMEN	*Other*	*CO*	M30	ICCS, AMAEM, CERTH
D4.11	NAIADES AI-Water Quality Monitoring & Dynamical Water Treatment & DSS – User Manual	WP4	AIMEN	*R*	*PU*	M30	CERTH, ICCS, JSI
D5.1	NAIADES Failure and Leakage Prediction Engine – Mid-term	WP5	JSI	*R*	*PU*	M18	IHE, GUARDTIME, CERTH

D5.2	NAIADES Failure and Leakage Prediction Engine - Final	WP5	JSI	*R*	*PU*	M30	KT, AIMEN, CERTH
D5.3	NAIADES Weather Forecasting Toolkit – Mid-term	WP5	CERTH	*R*	*PU*	M18	ADSYS, IHE, JSI
D5.4	NAIADES Weather Forecasting Toolkit - Final	WP5	CERTH	*R*	*PU*	M30	IBATECH, DISY, JSI
D5.5	NAIADES Water demand prediction toolkit – Mid-term	WP5	KT	*R*	*PU*	M18	MI, AIMEN, JSI
D5.6	NAIADES Water demand prediction toolkit - Final	WP5	KT	*R*	*PU*	M30	AMAEM, IHE, JSI
D5.7	Predictive AI analytics for consumer confidence – Mid-term	WP5	JSI	*R*	*PU*	M18	KT, SIMAVI, AIMEN
D5.8	Predictive AI analytics for consumer confidence - Final	WP5	JSI	*R*	*PU*	M30	EURECAT, DISY, CERTH
D5.9	Predictive AI analytics for the quality of the water – Mid-term	WP5	AIMEN	*R*	*PU*	M18	GUARDTIME, DISY, JSI
D5.10	Predictive AI analytics for the quality of the water - Final	WP5	AIMEN	*R*	*PU*	M30	JSI, ADSYS, CERTH
D6.1	Consumer Awareness and Behavioural Change Support Framework for Water Consumption and Usage Savings	WP6	ICCS	*R*	*PU*	M12	UDGA, JSI, AIMEN
D6.2	User Profile & Personalised nudging engine – Mid-term	WP6	ICCS	*R*	*PU*	M18	KT, DISY, CERTH
D6.3	User Profile & Personalised nudging engine – Final	WP6	ICCS	*R*	*CO*	M30	IHE, ADSYS, AIMEN
D6.4	non-ICT Public Awareness and Behavioural Change Interventions – Mid-term	WP6	IHE	*R*	*PU*	M18	IBATECH, ICCS, CERTH
D6.5	non-ICT Public Awareness and	WP6	IHE	*R*	*PU*	M30	CAR, IBATECH, ICCS

	Behavioural Change Interventions – Final						
D7.1	NAIADES Front-End and HMI Mechanisms and Integrated Decision Support Engine – Mid-term	WP7	KT	*R*	*PU*	M18	GUARDTIME, CERTH, AIMEN
D7.2	NAIADES Front-End and HMI Mechanisms and Integrated Decision Support Engine - Final	WP7	KT	*Other*	*CO*	M32	IHE, CERTH, AIMEN
D7.3	NAIADES Front-End and HMI Mechanisms and Integrated Decision Support Engine – User Manual	WP7	KT	*R*	*PU*	M32	EURECAT, SIMAVI, AIMEN
D7.4	Architecture of the NAIADES Marketplace – Mid-term	WP7	SIMAVI	*R*	*PU*	M18	GUARDTIME, AIMEN, KT
D7.5	Architecture of the NAIADES Marketplace - Final	WP7	SIMAVI	*R*	*CO*	M32	EURECAT, CERTH, KT
D7.6	NAIADES Security Mechanisms & Blockchain Component- Mid-term	WP7	GT	*R*	*PU*	M18	SIMAVI, JSI, KT
D7.7	NAIADES Security Mechanisms & Blockchain Component - Final	WP7	GT	*R*	*CO*	M32	DISY, JSI, KT
D8.1	System Integration & Final NAIADES Prototype	WP8	SIMAVI	*DEM*	*CO*	M30	ADSYS, KT, CERTH
D8.2	Test Cases Execution Plan	WP8	SIMAVI	*R*	*PU*	M18	IHE, JSI, AIMEN
D8.3	Test Cases Execution Report	WP8	SIMAVI	*R*	*PU*	M30	KT, ADSYS, CERTH
D8.4	City of Alicante Demo	WP8	AMAEM	*DEM*	*PU*	M36	EURECAT, SIMAVI, AIMEN
D8.5	City of Braila Demo	WP8	CUP	*DEM*	*PU*	M36	CAR, JSI, SIMAVI
D8.6	City of Carouge Demo	WP8	CAR	*DEM*	*PU*	M36	EURECAT, UDGA, SIMAVI
D8.7	Pilot Evaluation, Operation Manual,	WP8	AMAEM	*R*	*PU*	M36	MI, CUP, SIMAVI

	Recommendations and Best Practices Guide						
D9.1	NAIADES Communication Plan and Communication Activities Report – Mid-term	WP9	MI	*R*	*PU*	M18	CUP, ADSYS, CERTH
D9.2	NAIADES Communication Plan and Communication Activities Report - Final	WP9	MI	*R*	*PU*	M36	AMAEM, DISY, AIMEN
D9.3	Project website	WP9	MI	*R*	*PU*	M3	AIMEN, UDGA,CERTH
D9.4	Plan for exploitation and dissemination of results – PEDR – Mid-term	WP9	ADSYS	*R*	*PU*	M18	DISY, SIMAVI, MI
D9.5	Plan for exploitation and dissemination of results – PEDR - Final	WP9	ADSYS	*R*	*PU*	M36	CAR, IBATECH, MI
D9.6	NAIADES Dissemination Activities Report – Mid-term	WP9	MI	*R*	*PU*	M10	SIMAVI, VUB, AIMEN
D9.7	NAIADES Dissemination Activities Report - Final	WP9	MI	*R*	*PU*	M36	CUP, VUB, CERTH
D9.8	Market analysis	WP9	ADSYS	*R*	*PU*	M36	EURECAT, CAR, MI
D9.9	Cost-Benefit Analysis & Cost- Effectiveness Analysis Report	WP9	ADSYS	*R*	*CO*	M36	CERTH, GUARDTIME, MI
D9.10	Report on standards (a) used and (b) generated in NAIADES – First version	WP9	EUT	*R*	*PU*	M6	CUP, VUB, MI
D9.11	Report on standards (a) used and (b) generated in NAIADES - Final	WP9	EUT	*R*	*PU*	M36	MI, GUARDTIME, AIMEN
D9.12	SDG Impact Assessment	WP9	MI	*R*	*CO*	M36	IHE, JSI, CERTH
D9.13	LCA and LCCA	WP9	CERTH	*R*	*PU*	M36	UDGA, AIMEN, MI
D9.14	Plan of potential synergies between the other projects of the SC05-11-2018 portfolio	WP9	MI	*R*	*PU*	M12	KT, GUARDTIME, CERTH

D9.15	Synergetic activities with the other projects of the SC05-11-2018 portfolio	WP9	MI	*R*	*PU*	M36	CERTH, AIMEN, UDGA
D10.1	H - Requirement No. 1	WP10	CERTH	*E*	*CO*	M6	UDGA, VUB, AIMEN
D10.2	POPD – Requirement No. 2	WP10	CERTH	*E*	*CO*	M6	AMAEM, VUB, AIMEN
D10.3	H -POPD- Requirement No. 3	WP10	CERTH	*E*	*CO*	M6	UDGA, VUB, AIMEN

6.2 Process of approval for deliverables

The Workpackage leaders are accountable for the deliverables that are associated with their specific workpackage. Every deliverable will be reviewed by QB members that have been appointed (at least 2), on condition that they do not work in the institutes of the partners that take part in the deliverable preparation. In case all key partners participate in the preparation, each package will be reviewed by selected members of the QB and the external member of QB as well. If any shortcoming appears in the quality, task leader will be informed within a fixed period (max. 2 weeks) in order to make the required amendments. The timetable for deliverable submission has to be executed as shown in Table 6.2:

Table 6.3: Deliverable Submission Process.

Time	Action
First working day of deadline month	The authors should submit a draft version and ask for contribution from the suitable partners
Middle of deadline month (2nd week of deadline month)	The author should submit the version that is going to be reviewed by the appointed partners.
One week later (3rd week of deadline month)	The deliverable is returned by the reviewers with all comments and corrections that have to be addressed by the author.
Last working day of deadline month	The author should provide the final version to the coordinator in order to be submitted to the portal.

The authors should keep to these dates as closely as possible, on the grounds that any delays towards the EC should be avoided. Even though deviations are expected, any unreasonable delays should be documented.

6.3 Quality Measurement, Analysis and Improvement

Quality assurance is generally considered as part of quality management which focuses on providing confidence that quality requirements will be fulfilled. It is achieved with the help of audit control mechanisms internal and/or external to the consortium for the deliverables, appropriate corrective and preventive actions and a set of quantitative quality measures.

In this section, the necessary activities to measure, analyse and improve quality of project results are described.

6.3.1 Internal Audit

The Internal Audit includes audit control and review in two dimensions: technical and quality. The WP leaders and the PC are responsible to conduct internal technical reviews to the deliverables before

submission to the European Commission, while the quality review is conducted by the Quality Assurance Manager. The Quality Assurance Manager is responsible for assigning two (2) additional reviewers (among the project partners) in each deliverable.

Technical aspects of the project documentation will be reviewed in order to ensure that all technical information is consistent to:

- Current state-of-the-art and recent technological research level.
- Project objectives, previous project results and specifications.

In order to facilitate the technical review process, two reviewers have been already assigned in each deliverable, as indicated in Table 6.1. In general, the procedure and timeline for the internal quality audit controls is illustrated in the following figure. All findings of the internal audit controls will be recorded in a special Review Form (Annex VI: Internal Review Report Template), where the reviewer will provide his/her comments. Then, the WP leader and the authors need to determine corrective actions and arrange for follow-up actions on the same template. During the technical or quality validation phase, the reviewer can also provide additional remarks on how the specific comment has been implemented in the relevant deliverable. The complete results of the Internal Quality Audits will be communicated to all partners, related to the specific WP.

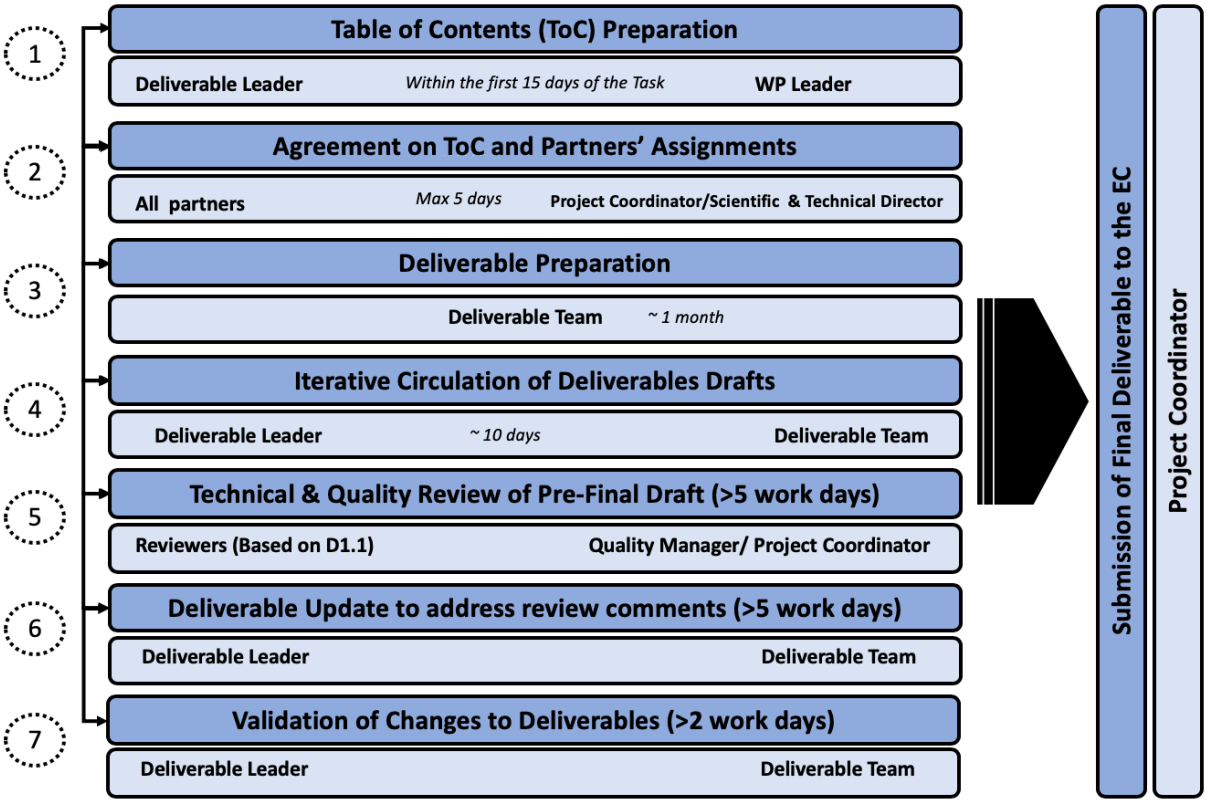

Figure 6.1: Timetable for Internal Audit of NAIADES Project

6.3.2 Quality Records Management

A record is defined in ISO 9000 as a document stating the results achieved or providing evidence of activities performed. In this context, in NAIADES, the quality records refer to project documentation (deliverables, presentations, etc.) along with the Internal Review Reports, corresponding to each deliverable.

Records will be filled in a readily retrievable manner for the minimum period specified under the NAIADES Grant Agreement and will be kept in a suitable environment to minimise damage. The PC is held responsible for maintaining the quality records and making them available to the European Commission, if necessary.

6.3.3 Quality Assurance Metrics

Monitoring of the project quality throughout the project lifecycle will be done through metrics associated to the documentation quality, as indicated in the following section.

Table 6.4: Quality Assurance Metrics.

Metric ID	Description	Target
#1	No. of inconsistencies according to the deliverable template (format, layout, spelling)	0
#2	No. of legibility issues in text, figures or tables	0
#3	Percentage of correspondence to project objectives	100%
#4	Maximum delay days in the internal submission of documents for review (according to the timetable provided in the document review procedure)	3
#5	Percentage of technical and quality comments addressed (from the internal review)	95%
#6	Maximum number of quality review rounds	1
#7	Maximum number of technical review rounds	2
#8	Delays in the submission to the Commission of the deliverables according to the timetable at the Description of Action (Annex I of the Contract).	0

6.4 Document control Management

Document Control Management (DCM) deals with the preparation of template documents, the identification and the tracking of changes related to draft and final versions of documents circulated among the partners.

The Project Coordinator is responsible for the necessary assessment of deliverables, while the Quality Manager will be responsible for the overall monitoring of the entire document control and configuration management activities described in this section.

6.4.1 Documentation Requirements

In the span of the NAIADES project, a set of deliverables and relevant documented results are anticipated as depicted in the following table. Such documents will be sent by e-mail and be uploaded in the restricted NAIADES document repository, as long as they comply with the following standards:

- Word Processor: Microsoft Word 2007 and higher,
- Spreadsheet: Microsoft Excel 2007 and higher,
- Presentations: Microsoft PowerPoint 2007 and higher.

All files should be scanned for potential viruses before issue and screened on receipt. If an acknowledgement is requested, an explicit request should be included by the sender at the top of the message (e-mail, fax, etc.).

Table 6.4: Project Documentation.

Type	Responsible	Template
Deliverable submitted to the EC	As per the DoA	Annex II: Deliverable Document Template.
Internal Project Presentation	All partners	Annex III: Project Presentation Template.

Meeting Agenda	Project Coordinator, CERTH	Annex IV: Meeting Agenda Template.
Meeting Minutes	Partner hosting the Meeting	Annex V: Meeting Minutes Template.
Reviewed Document	All partners	A new version with track changes on the original version.
Internal Review Report	All partners	Annex VI: Internal Review Report Template.
Final Activity Report	Project Coordinator / WP Leaders	As per Grant Agreement and Commission guidelines.
Final Management Report	Project Coordinator	As per Grant Agreement and Commission guidelines.
Consolidated Financial Statement	Project Coordinator	As per Grant Agreement and Commission guidelines.
Financial Statement	All Partners	As per Grant Agreement and Commission guidelines.

6.4.2 Naming Conventions and Versioning

Document configuration management will be ensured through tracking the versions and the history of changes within the various project documents, such as:

- Deliverables (as stated in the deliverables list in the NAIADES DoA),
- Presentations of the project results,
- Meeting agenda and minutes,
- Internal audit reports and reviewed deliverables, including the corrective actions taken.

Document history will be tracked in each deliverable in a separate table describing the different versions of the document and the reasons of change/updates on it (please refer to Annex II).

Document versioning will be tracked through the monitoring of the Configuration Matrix in which all versions of each document will be tracked (for the template Configuration Matrix, please refer to Annex VII).

Deliverables Submitted to the European Commission

Table 6.5: Deliverable Naming Conventions

Name	NAIADES _[Deliverable Code]-[Deliverable Title]-vA.BB
(Draft)	NAIADES_[Deliverable Code]-[Deliverable Title]_[Partner]-vA.BB
Where	A: Major version of the deliverable (Submission to European Commission)
	BB: Minor version of the deliverable for updates during the preparation phase
Examples	NAIADES_D1.1-Project Handbook-v1.00 (for submission to the European Commission)

	NAIADES_D1.1-Project Handbook_CERTH-v0.30 (for internal updates and submission for internal review)

Internal Project Presentation

Table 6.6: Presentations Naming Conventions

Name	NAIADES_[Purpose] or [WP Number]_[Partner]-vA.BB
Where	A: Major version of the presentation (Presentation in the event / workshop)
	BB: Minor version of the presentation for updates during the preparation phase
Examples	NAIADES_WP1-WP7_CERTH-v1.00

Meeting Agenda

Table 6.7: Meeting Agenda Naming Conventions

Name	NAIADES_[Meeting Number] Agenda_[Place]-vA.BB
Where	A: Major version of the meeting agenda
	BB: Minor version of the meeting agenda for updates during the preparation phase
	Place: Venue city
Examples	NAIADES_KOM Agenda_Thessaloniki-v1.00 (final version)
	NAIADES_KOM Agenda_Thessaloniki-v0.10 (for internal updates and submission for internal review)

Meeting Minutes

Table 6.8: Meeting Minutes Naming Convention

Name	NAIADES_[Meeting Number] Minutes_[Place]-vA.BB
Where	A: Major version of the meeting minutes
	BB: Minor version of the meeting minutes for updates during the preparation phase
	Place: Venue city
Examples	NAIADES_KOM Minutes_Thessaloniki-v1.00 (final version)
	NAIADES_KOM Minutes_Thessaloniki-v0.10 (for internal updates and submission for internal review)

Reviewed Documents and Internal Audit Reports

Table 6.9: Reviewed Document Naming Conventions

Name	NAIADES _[Deliverable Code]-[Deliverable Title]-vA.BB
Where	A: Major version of the deliverable / internal audit report
	BB: Minor version of the deliverable / internal audit report for updates during the preparation phase
	TR: Technical Reviewed document
	QR: Quality Reviewed document

Examples	NAIADES_D3.2- SIVECO -v0.31 (Technical Reviewed Document from SIVECO)
	NAIADES_D2.1-CERTH-v0.36-Internal Audit (Review report from CERTH)
	NAIADES_D7.1-CERTH-v0.41 (Quality Reviewed Document from CERTH)

7 Communication Strategy

7.1 Information Flow

Effective channels of internal communication have been established from M1 in order to exchange all the necessary information for the project's implementation, such as deliverables and relevant documentation. Internal communication channels are also used for exchanging meeting minutes and progress reports, ensuring a common understanding among all partners regarding the required achievements during the lifetime of the project as well as the procedures that have to be followed for fulfilling them. The means for remotely conveying information among NAIADES partners include:

- E-mail communication and file transfer over the Internet. Dedicated mailing lists have been created for the following purposes:
  - naiades-all@genevaproxy.com has been created to serve the project's implementation needs, when it comes to announcements to all people that work in the NAIADES consortium.
  - The dedicated WP lists:
    - naiades-wp1@genevaproxy.com
    - naiades-wp2@genevaproxy.com
    - naiades-wp3@genevaproxy.com
    - naiades-wp4@genevaproxy.com
    - naiades-wp5@genevaproxy.com
    - naiades-wp6@genevaproxy.com
    - naiades-wp7@genevaproxy.com
    - naiades-wp8@genevaproxy.com
    - naiades-wp9@genevaproxy.com
    - naiades-wp10@genevaproxy.com

    have been created to facilitate communication at WP level.
  - naiades-pm@genevaproxy.com has been created for Project Management issues.
  - naiades-mb@genevaproxy.com has been created to assist Management Board communication.

  If new members from a partner would like to join the mailing list, the PC needs to be previously informed via email from the partner leader to send them a personal electronic invitation for the group. Urgent correspondence via e-mail needs to be sent with a request for acknowledgement or read receipt.

- Use of popular cloud-based services for collaboratively developing content for the project, in line with local and European legislation, including GDPR compliance.
- GoToMeeting[7], Skype[8] , other communication tools and Telephone facilities for teleconferencing purposes among the partners based on the project WP needs.

[7] https://www.gotomeeting.com/

[8] https://www.skype.com/

Apart from the above-mentioned electronic communication means, express mail (via post) will be used for strictly formal correspondence, i.e. when executive signatures are required.

The PC is responsible to ensure adherence to the aforementioned communications channels.

Furthermore, in order to ensure that the right information will reach the right people in larger, external to the consortium communities, the following mechanisms that will be finalised in Deliverable "D9.6: NAIADES Dissemination Activities Report – Mid-term", D9.7: "NAIADES Dissemination Activities Report – Final" under T9.2 Dissemination activities in M10 shall be appropriately considered: Mailing lists, Web site, Blog, Social Media such as Twitter[9], LinkedIn[10], Facebook[11], Slideshare[12], YouTube[13], etc. The appropriate combination of such communication mechanisms will be used for enhancing the project's visibility.

7.2 Meetings and Conferences

Regular and ad-hoc meetings will be held during the project's lifecycle, including:

- **Management Board Meetings**, held at least once a year in order to ensure the implementation of the Project. The PC is responsible for the meeting formation (agenda of the meeting) and the communication of the meeting details (time, place) at least 3 weeks before the date of the meeting, to allow time to the participants for the scheduling and preparation of the necessary information for the meeting.
- **Project Plenary Meetings**, held at least every 6 months in order to ensure that all procedures are understood and implemented in the proper way. The PC is responsible for the meeting formation (agenda of the meeting) and the communication of the meeting details (time, place) at least 2 weeks before the date of the meeting, in order to allow time to the participants for the scheduling and preparation of the necessary information for the meeting.
- **Online Work Package Meetings** held approximately every 15 days according to the workload and performed through the teleconferencing facilities of the PC (CERTH). Each WP leader will propose the meeting schedule according to the WP needs at least 1 week before the date of the meeting and coordinate the necessary actions among the involved partners for the implementation of the WP activities. Each WP leader will communicate the final agenda of the meeting at least 1 day before the meeting date.

A tentative schedule of the project meetings is available in Table 7.1 while some workshops will be also organised during the project lifetime.

Table 7.1: *Tentative Schedule of Upcoming Project Meetings*

Meeting Identifier	Tentative Dates	Place	Hosting Organisation
Kick-Off Meeting	4/06/2019	Thessaloniki	CERTH
1st Plenary Meeting	…/11-12/2019	The Netherlands	IHE DELFT
2nd Plenary Meeting		TBD	TBD

[9] https://twitter.com/
[10] https://www.linkedin.com/
[11] https://www.facebook.com/
[12] www.slideshare.net/
[13] https://www.youtube.com/

3rd Plenary Meeting		TBD	TBD
4th Plenary Meeting		TBD	TBD
5th Plenary Meeting		TBD	TBD

Following up on a physical project meeting, the decided meeting minutes will be compiled within 15 calendar days of the meeting and will be the formal record of all the decisions taken**.** The minutes will be considered as accepted if, within 15 calendar days upon sending them, no partner has declared any written objections to the Project Coordinator with respect to the accuracy of the draft version of the minutes.

The next meeting locations and dates will be decided in project meetings or scheduled with the help of Doodle[14] polls. The PC is responsible for setting up the poll, send the link to partners and decide for the final dates.

Ad-hoc meetings may be organised in case of an emergency or a conflict resolution.

7.3 Decision making

Decisions regarding the project's implementation will normally be taken by the team members upon reaching consensus with the WP leaders. Typically, agreement will be reached first by informal contact, followed by official confirmation via electronic mail, letter or agreed written minutes. In case of there is a dispute between two or more team members, a conflict resolution procedure must be followed, as presented in the following section.

For important issues, the agreement may take the form of a short report that needs to be signed by the Management Board. Non-technical factors such as resource allocation and contractual terms will also need to be agreed and documented in writing.

The key driver for the decision-making procedures is the description of action to be performed as stated in the Contract, the Consortium Agreement, the DoA and the deliverable at hand, and as regularly communicated within the consortium. Transparency of the implementation decisions and actions will be achieved by adequate communication of the emerging issues on project meetings and e-mail communications.

7.4 Conflict Resolution

Generally, technical issues or conflicts within the contractual commitments that do not involve any contract, budget, resource allocation or overall project focus changes will be discussed at work package level first.

If the decision reached between team members is unacceptable by other partners, the conflict will be resolved according to a conflict resolution procedure which can be summarised in the next steps:

1. The team members involved in the implementation of the work package will inform the WP leader of the emerging conflict.
2. The WP leader will decide whether the issue needs to be discussed in a teleconference or a dedicated WP Meeting. The WP Leader will inform the PC of the planned actions.
3. The result of the teleconference or the meeting will be communicated to the PC.
4. If no consensus has been reached so far, the PC will contact the responsible persons and will try to resolve the conflict.

[14] doodle.com/

In case the disagreement remains, the issue will be escalated in the MB. The decision that will be taken at this level, based on the provisions of CA, will be considered as the final resolution of the issue.

8 Reporting

8.1 Progress Reporting

The project reporting can be split into two categories:

Internal, where the progress reports take place within the consortium. As part of the internal reporting, the NAIADES partners will submit every 6 months their actual resources consumption, which includes:

- Person-months per task spent in the reference period (6 months),
- Person-months per task scheduled to be spent until the end of the reporting period (next 6 months), and
- Subcontracting, travel and other direct cost spent in the reference period (6 months).

Consequently, a relevant request is sent to all partners, including the template related to the collection of resources data. This data will be added to a master resources file on NAIADES WORKFLOW MANAGEMENT SYSTEM. Every WP leader is asked to approve the budget for its WP. Finally, the file will be updated when each period of reporting by all resources is finished.

External, where the periodic reports are submitted to the EC. These reports will ensure that the projects objectives are implemented appropriately. During the project, a final review and an interim meeting will be taking place for the reporting periods, as well as one more on M9. There is, also, distinct possibility of calling together formal sub-reviews with the participation of external reviewers. The management reports are submitted by the Project Coordinator with contributions from all participants after the end of each reporting period. These reports and the deliverables should be submitted within 60 days after the end of the respective periods.

8.2 Financial Reporting

The financial reporting includes individual financial statements for each partner, for the respective reporting period. In this report, the eligible costs for each budget category are described. Every partner must declare all eligible costs, even if these costs are higher than the amounts in the estimated budget. In addition, they explain the use of resources and provide information on subcontracting provided by third parties from them. A periodic summary financial statement is created concerning the financial statements of the partners.

9 Risk management plan

Risk management requires identification, control and recording of risks, highlighting of the consequences and the appropriate management actions. Risk management is a balance of judgement so that the risks are minimised without over-emphasising the potential problems. Controlling the risks will help the consortium manage the project in a way to achieve properly the objectives on time and to budget.

The following four activities are enacted through a continuous closed cycle, which will be iterated for each project milestone:

- *Risk Identification*: Determining the risks that may affect the project and documenting their characteristics.
- *Risk Quantification (Analysis)*: Prioritising risks by assessing and combining their probability of occurrence and impact and analysing the effect of identified risks on project objectives. During risk

analysis, various risk attributes are evaluated to establish values for the probability of the occurrence of the event and the degree of its impact. The following table presents the values used for these aspects for the quantitative analysis of the risks in NAIADES.

- *Risk Response Planning*: Developing options and actions to enhance opportunities and to reduce threats to project objectives.
- *Risk Monitoring and Control*: Implementing risk response plans and tracking identified risks throughout the project.

Table 9.1: Risk Quantification

Risk Impact	Risk Probability of Occurrence
1 – Insignificant	1 – Very Low (1-20%)
2 – Low	2 – Low (21-40%)
3 – Moderate	3 – Moderate (41-60%)
4 – Major	4 – High (61-80%)
5 – Catastrophic	5 – Very High (81-99%)

The overall management structure of the project and its relevant principles implement several mechanisms to avoid or minimise potential risks. The PC, with the cooperation of the MB, the PB, the STM, the IM/SM and the rest of the project management roles (WP Leaders) will be mainly responsible to handle risks and inform all partners when necessary. Milestones, work packages and related tasks are designed and scheduled carefully to minimise the number of complex inter-dependencies to ease development and to reduce the possibility of delays.

As a part of the first iteration of the risk management procedure, risk identification, analysis and response planning activities have been performed and the risks that will be monitored and controlled throughout the project have been identified. In this perspective, we can identify two main classes of risk analysis:

- *Technical Risk Analysis*: Any new research and innovation program contains inherent amount of risk. It is therefore important to design a management procedure to handle these risks and identify a series of contingency actions to minimize their impact.
- *Non - technical Risk Analysis*: Non-technical risks include administrative and operational tasks, which may experience a problem incurred during the course of the project. As a result, it is designed a non-technical risk action plan including multiple potential risks highlighting their impact and likelihood. Contingency and mitigation plans are also presented for the identified risks. Throughout the project, the technical related tasks will be overseen by the STM and other consortium related tasks will be overseen by the Coordinator.

The following table summarises already identified risks.

Table 9.2: Identified Risks and Proposed Solutions

Risk ID	Description of Risk	WPs Involved	Risk Probability	Risk Impact	Proposed Risk Mitigation Measures
Scientific & Technological Risks					
R1	Unforeseen technical problems that may not	3,4,5	2	4	The situation will be assessed by the Coordination Board of the project, in collaboration with the involved WP leaders to decide about adequate re-

	be resolved with the assigned resources				planning actions that ensure the overall project result.
R2	Some developed components are not sufficiently performing	3,4,5	2	3	Careful analysis of user requirements and environmental constraints. Possible replacement with alternative solutions.
R3	Some components are not ready for integration	8	2	3	The integration process will be progressive and step by step. As soon as an intermediary version of a component is ready, it will be tested in the integration platform. The issues will therefore be solved gradually and not discovered at the end. In addition, early and clear definition of technologies, interfaces and conventions will help to reduce this risk. In addition, emulation of not yet available components by mock-up or simulation can be used. The experimental demonstration could be repeated once the advanced components become available
R4	Difficulties in integration of NAIADES components	8	2	4	Careful definition of technical requirements and especially of module interfaces. Consider users' interaction and procedures.
R5	The proposed tools not addressing relevant cases	2, 3, 4, 5, 6, 7	2	4	Relevant end-users involved in the project from the outset. Sound use cases based on end-users operational experience and validated by end users
R6	Due to system complexity, the integration reduces overall system performance	8	2	2	Predict and continuously measure module and system performance throughout design, development and integration activities. Usage of appropriate tools to assess potential shortcoming before the actual integration/ deployment of the system.
R7	Inability to perform a pilot demonstration	8	1	4	The consortium will take necessary actions in a timely manner, well before the actual pilot dates to ensure proper delivery. In the case of a force majeure, the use of appropriate tools can be used for the provision of a synthetic scenario build.
R8	NAIADES solution is not compliant with national law. (ALL) (medium)	1, 10, 2, 3, 4, 5, 6, 7, 8, 9, 10	2	3	Early in-depth analyses of legal issues in WP9.

R9	Poor Framework Performance during tests resulting to failure of the Trials	6, 7, 8	2	2	All Pilot operators will constantly monitor the pilot's conditions for such bad performance problems to be depicted at early stages & an adequate and effective solution to the problem to be provided. Moreover, the system developers will study the reasons of the deterioration to find a way to prevent same problems in the future.
R10	Poor quality of data to validate the results	8	2	3	Pilot sites have already been carefully selected to ensure that they are suitable for the demonstrations. T2.3 will analyse pilot sites and existing infrastructure so as to guarantee the Use Case Requirements during the pilot execution. In addition, regular remote meetings will be held to check all pilot teams are aligned
R11	Cooperation problems between the different components of the NAIADES Framework	8	2	3	Extensive tests will be carried out for all components separately prior to the official testing and their integration to the NAIADES Framework in order to ensure that they were designed and developed according to the project's needs. In this way the proper cooperation among the different components will be ensured. The care given to interoperability further minimizes the risk of such a situation.
R12	Proposed solutions are not aligned with the European core values and SMEs expectations	1, 10, 2, 3, 4, 5, 6, 7, 8, 9, 10	2	3	Societal concerns are considered at an early stage and constantly communicated to all partners by WP1 & WP9 horizontal activities.
R13	The developed solution is too expensive to be affordable by end user organisations	8	2	3	The NAIADES toolbox will provide different levels of complexity, so a range of solutions (including different individual components) with varying costs will be available as an end product
R14	Open access to NAIADES data may affect the exploitation of results commercially, for instance through patenting.	2, 3, 4, 5, 6, 7, 8	2	3	Partners will be able to decide if they will publish their data through open access or first seek protection after a general discussion with the consortium.
R15	Collected personal data are used for commercial purposes	2, 3, 4, 5, 6, 8, 9	1	2	During NAIADES project, no personal data will be collected at user level. In case of usage of personal data for

					commercial purposes, data will be first transformed into anonymous data. Furthermore, partners will aggregate anonymous data with relevant data in order to decrease data subjects' identification.
R16	Unforeseen changes/improvements in data formats/APIs with open access	3, 4, 5, 8	3	3	All data sources will be monitored on a regular basis. In case any change is detected, all necessary updates will be applied in order to avoid the exposure of confidential parts of project.
R17	Unauthorised usage of data created by NAIADES partners	3, 4, 5, 6, 8	1	2	All data access facilities will be chosen carefully in order to prevent data leakage. Moreover, when partners favour to protect their data from malicious reuse, reproduction etc., they will grant open licences by providing proper access, sharing and usage of datasets and data repositories.
Management Risks					
R14	Partner underperforms or leaves the consortium	1	3	4	In case of a Partner's resignation, pending workload will be either re-distributed among Partners on the basis of their competencies or a replacement Partner will be identified. In addition, the Consortium Agreement will foresee such situations and will describe measures to be taken to prevent non-compliance to project activities.
R15	Low quality of project results	1	3	4	The internal reviewing process for all project deliverables and reports, plus the contribution of Advisory Board, will ensure high quality project results.
R16	Stakeholders outside the project are not interested	9	2	2	Stakeholders will be contacted early in the project through the Advisory Board and through various communication activities in an effort to raise interest throughout the scientific and end user community. Three NAIADES workshops are planned.
R17	Delays in the tasks' completion due to lack of resources, inability of partners or disharmony in the collaboration	1	2	3	The work plan of the project has been carefully planned, and the partners have a lot of experience in participating in such projects. Coordinator and project management team will adopt a proactive approach by identifying all critical paths

					in the project and by performing the necessary rescheduling and crashing.

Regarding risk monitoring, the Project Coordinator will continuously monitor and assess identified risks and pay specific attention to risks that have been ranked as with high and medium exposure.

A risk information document will be used for identifying new risks as well as modifying the status of risks, tracking the status and monitoring the mitigation strategy evolution, when appropriate. This document will be an online sheet which will allow specific partners to access, view and/or edit this document. More specifically, when a new risk is identified in the partners' tasks, partners will report it to the respective boards and then, a thorough discussion between the boards and the Scientific & Technical Manager will be conducted in order to estimate the possibility of the reported risk and the impact that can cause in the project. The Scientific & Technical Manager will be responsible for updating the online risk information sheet regarding the status and the monitoring of the risk during the lifespan of the project. In this way, the Project Coordinator will be informed about the risks that exist in every task and act accordingly, by mitigating the effect they can bring upon the project.

Annex I: References

[1] ISO 9001:2000, Quality management systems — Requirements

[2] Hoyle D. (2006) ISO 9000 Quality Systems Handbook, 5th Edition, Butterworth-Heinemann, Elsevier

Annex II: Deliverable Document Template

Please refer to the file by following this link: Deliverable Document Template

Annex III: Project Presentation Template

Please refer to the file by following this link: Project Presentation Template

Annex IV: Meeting Agenda Template

Please refer to the file by following this link: Meeting Agenda Template

Annex V: Meeting Minutes Template

Please refer to the file by following this link: Meeting Minutes Template

Annex VI: Internal Review Report Template

Please refer to the file by following this link: Internal Review Report Template