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DELIVERABLE

Quality Assurance & Risk Management Plan

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Executive Summary

The purpose of the deliverable Quality Assurance & Risk Management Plan, which is essentially the **Quality Assurance Plan (QAP)** of the **LIFE GAIA Sense** project, is to provide a single point of reference on the quality that will be systematically managed during the course of the project.

The deliverable at hand defines the project organisation, roles and responsibilities with emphasis on the quality control and quality assurance activities that will be carried out. It describes how the project will execute its day-to-day activities from a quality perspective, and ensures that standards, processes, and procedures are defined so that their execution is continuously monitored and improved.

NP, the Coordinating Beneficiary of the project, has established and implements an ISO 9001:2015 certified **Quality Management System (QMS)** and therefore the project will be coordinated in conformity with this certified QMS. By definition, ISO 9001 is about the systematic management of Quality and Risk, and as this deliverable is produced by NP, it strongly co-relates to the ISO 9001 requirements for the management of Quality and Risk.

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Definitions, Acronyms and Abbreviations

Acronym	Title
AB	Advisory Board
ALs	Action Leaders
AUTH	ARISTOTELIO PANEPISTIMIO THESSALONIKIS (Aristotle University of Thessaloniki – Special Account of Research Funds)
BRM	Business & Replicability Manager
CE	Circular Economy
CONFAGRI	Confederação Nacional das Cooperativas Agrícolas e do Crédito Agrícola de Portugal CCRL
EASME	Executive Agency for Small and Medium-sized Enterprises
EB	Executive Board
EU	European Union
GAIA	GAIA EPICHEIREIN ANONYMI ETAIREIA PSIFIAKON YPIRESION
GA	Grant Agreement
M2M	Machine2Machine
NP	NEUROPUBLIC AE PLIROFORIKIS & EPIKOINONION
QA	Quality Assurance
QMS	Quality Management System
PA	Partner Agreement
PB	Project Board
PC	Project Coordinator
POM	Pilots and Outreach Manager
SF	Smart Farming
TM	Technical Manager
COSTEIRA	VIÑA COSTEIRA SCG
MIRABELLO	Agricultural Cooperative Partnership Mirabello Union S.A.
VELVENTOS	Agrotikos Synetairismos Epexergasias kai Poliseos Oporokipeftikon Proionton (ASEPOP) Velventou SYN.P.E

1. Introduction

1.1. Project Summary

The main objective of the LIFE GAIA Sense project is to demonstrate gaiasense, an innovative “Smart Farming” (SF) solution that aims at reducing the consumption of natural resources, as a way to protect the environment and support Circular Economy (CE) models.

More specifically, this project will launch 18 demonstrators across Greece, Spain and Portugal covering 9 crops (olives, peaches, cotton, pistachio, potatoes, table tomatoes, industrial tomatoes, grapes, kiwi) in various terrain and microclimatic conditions. They will demonstrate an innovative method, based on high-end technology, which is suitable for being replicated and will be accessible and affordable to Farmers either as individuals or collectively through Agricultural Cooperatives.

Moreover, LIFE GAIA Sense aims to promote resource efficiency practices in SMEs of the agricultural sector and eventually, contribute to the implementation of the Roadmap to a Resource Efficient Europe. This project will demonstrate a method on how the farmer will be able to decide either to use or avoid inputs (irrigation, fertilizers, pesticides etc.) in a most efficient way, without risking the annual production. The focus is on the resource consumption reduction side of CE, and the results will be both qualitatively and quantitatively, considering the resources’ efficiency in agricultural sector

1.2. Document Scope

Quality Assurance and Risk Management are intended to permeate all activities of the project and act as safeguards. Quality is Assured and Risks are Managed for both project products and project management practices. More specifically, as part of the E.1 Project Management Action, sub-action E.1.2 Quality Management & Risk Monitoring will be active for the whole duration of the project [M1 – M48] in order to maintain a high quality level in the whole project structure and outcomes and to identify, monitor and manage potential project management risks.

According to EN/ISO 9000, **Quality** is the degree to which the set of inherent characteristics of a product or a service satisfies the requirements that apply to it. Furthermore, **Quality Assurance** (QA) is the part of Quality Management that focuses on the provision of confidence that quality requirements are satisfied. Correspondingly, according to ISO/IEC 27000, **Risk** is the effect of uncertainty on objectives and **Risk Management** is the set of coordinated activities to direct and control an organization with regard to risk.

NP, which is the coordinating beneficiary of the LIFE GAIA Sense project, has established, implemented, maintains and continually improves a Quality Management System (QMS) which is certified by TUV AUSTRIA HELLAS that satisfies the requirements of the EN/ISO 9001:2015 requirements. The scope of this certification includes “the design, installation, maintenance and support of telemetry stations” which applies particularly to this project. Furthermore, the coordination of this project by NP will be made according to the processes of its QMS, which cover both Quality Assurance and Risk Management.

Therefore, as elaborated in the following chapters, **Quality Management** will contribute in establishing the relevant to the project quality control and quality assurance activities for ensuring an efficient collaboration among the consortium partners and delivery of project results; whereas **Risk Management** shall provide the process and techniques for the evaluation and control of potential project risks, focusing on their precautionary diagnosis and handling.

2. Quality Assurance - Summary

As mentioned in the Introduction, **Quality** is the degree to which the set of inherent characteristics of a product or a service satisfies the requirements that apply to it, and **Quality Assurance** (QA) focuses on the provision of confidence that quality requirements are satisfied.

In the case of the LIFE GAIA Sense project, the quality requirements are its main objective, i.e. to demonstrate gaisense, an innovative “Smart Farming” (SF) solution that aims at reducing the consumption of natural resources, as a way to protect the environment and support Circular Economy (CE) models.

This main objective consists of the following sub-objectives:

Table 1: LIFE GAIA Sense Objectives

No.	Description
1	Setup and establish a large scale SF infrastructure for data collection and analysis and 18 demonstrators of GAIA Sense SF solution.
2	Establish a network of scientists and professionals and engage them in adapting the SF services and models to the specific needs of each demonstrator and each crop.
3	Apply the results to the field and measure the rate of decline of inputs on selected crops and correlate between the GAIA Sense results' and the targets set as policy by EU over the CE.
4	Measure the impact of GAIA Sense on soil, water and air quality.
5	Disseminate the project's results at national and EU level and build a robust business model to ensure their replicability and sustainability.
6	Form policy making proposals in order to implement efficient methods of managing resources in agriculture sector.
7	Starting from investing on the success of small scale demonstrators, the project intends to attract the interest of larger stakeholder groups, to achieve the scale needed for adaptation efforts that make real sense e.g. from local cooperatives to organizations like Copa Cogeca

2.1. Quality Assurance Processes

NP, as the coordinating beneficiary, will apply, as required, the following processes of its ISO 9001:2015 certified QMS:

- the **Management Process**,
- the **Support Process**,
- the **Production Process**, and
- the **Process of Evaluation and Improvement**

2.1.1. Management Process

NP is responsible for the coordination of the project and leading its QA activities, in the framework of Action E.1 Project Management. These activities will be managed by the following management hierarchy, as presented in figure 2.

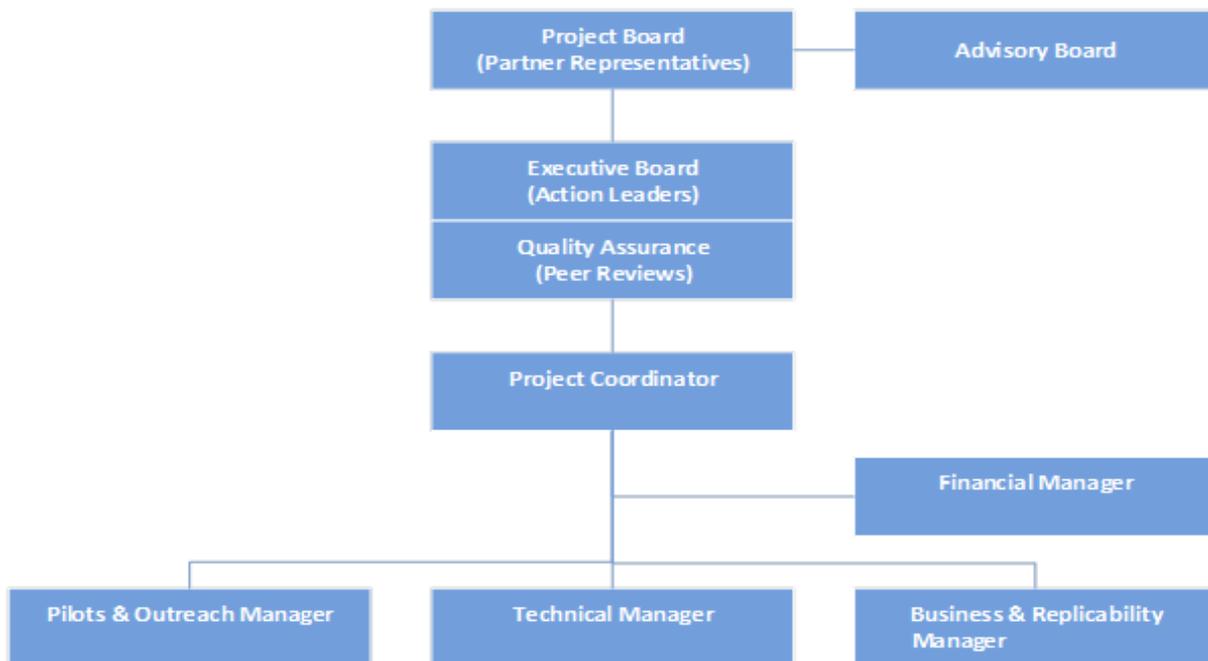


Figure 1 - Project Management Hierarchy

The **Project Board** (PB) is responsible for the supervision of the LIFE GAIA Sense project, as its formal decision-making body and its highest level of management.

An **Advisory Board** (AB) featuring experts representing both the industry and the respective research community, will provide support and insights to guide the PB to make the right decisions and achieve the maximum impact.

The **Executive Board** (EB) consists of all **Action Leaders** (ALs) who will manage the operational activities within their actions.

The **Project Coordinator** (PC) is responsible for the day-to-day running of the project and acts on behalf of the other decision-making bodies of the project.

The **Technical Manager** (TM) is responsible for the technical vision of the project, as well as, for monitoring the technical development and deployment of the GAIA Sense solution.

The **Pilots and Outreach Manager** (POM) is responsible for the efficient and successful outreach of LIFE GAIA Sense in all the relevant communities.

The **Business & Replicability Manager** (BRM) is responsible for designing the business model and the replicability strategy to ensure the sustainability of the project outcomes and the maximization of their impact after the end of the project.

2.1.2. Support Process

- NP as the Coordinating Beneficiary
 - Will ensure that it and the other Beneficiaries of the Project's Consortium shall provide the resources need for the successful completion of the LIFE GAIA Sense project. They will consider the capabilities of their existing resources and what needs to be obtained from external sources.
 - Is mainly responsible for the control of the documented information of the project
- NP as the Coordinating Beneficiary and the other Beneficiaries of the Project's Consortium :
 - Shall ensure that the project's personnel is aware of the Quality Assurance Process, the Project's Objectives and of the way their role contributes to overall achievement of the project's Quality Requirements.
 - Shall determine the internal and external communications relevant to the Project.
- Each Action Leader, under the monitoring of the EB and the PC, is responsible for controlling processes, products and services that will be provided by external providers to the Action(s) for which they are responsible.

2.1.3. Production Process

The PB and the PC are responsible for the planning, implementation and control of the processes necessary for the achievement of the project's objectives.

Requirements elicitation and performance indicators definition are included in the context Action A.1

As described in the GA, in the context of Action A.2 Smart Farming Application design the requirements collected in Action A.1 will be translated into functional and non-functional requirements for the Smart Farming Application. In addition to this, the interface of the application will be designed and two set of mockups will be developed, one for a web-based app and one for a mobile app, to serve as the main input for action B3.4 Application development. An iterative approach will be used to make sure that the user requirements are met. A first version of the design and the mockups will be presented to the engaged stakeholders by M6 (31/12/2018) to get feedback while a final version will be delivered in M9 (31/03/2019).

Then in the context of Action B.3 Development of Smart Farming models for selected crops and services and Smart Farming application:

- Specialized pests / diseases prediction models will be developed and customized [B3.1];
- Specialized irrigation models will be developed and customized [B3.2];
- Specialized fertilization models will be customized [B3.3]; and
- the Smart Farming Application will be developed [B3.4].

The commercial launching of the LIFE GAIA Sense solution and services to the targeted customers will take place in the context of Action B.9 Exploitation and Business Modelling which will provide a thorough analysis of the targeted markets and create the necessary business model.

2.1.4. Process of Evaluation and Improvement

Initial technical testing and user validation of the GAIA Sense solution will take place in the context of sub-action B3.5, covering both the infrastructure and the SF Application. This will include standardized techniques and processes, which evaluate the Integrity and Validity of the data. All testing procedures will ensure that the infrastructure meets the specifications.

Then, in the context of Action B.7 the environmental impact of the Smart Farming application in the demonstrator farms will be assessed, aiming to quantify environmental externalities and support policy formulation. Air, soil and water quality will be monitored and evaluated. The aim of the monitoring is to detect an impact, if it has occurred and to estimate its magnitude. An essential part of the process is to establish that the perceived change is a consequence of the project and not the function of some other cause. The implementation of the action will involve field data sampling methods and modelling tools.

Furthermore, monitoring of the impact of the project actions will take place in the context of Action C.1 which will focus on the development and implementation of a strategy for monitoring and reporting on the project results, in order to assess the overall project impact. The foreseen impact of the project on both the local environment (C1.1), as well as on the involved stakeholders (C1.3), will be evaluated. The implementation of the action will be based on the setting of appropriate indicators. The suggested indicators will be periodically measured on the basis of data collected on environmental status and resource usage from the project pilots, as well by distributing targeted questionnaires to the participating farmers. The relevant information will be communicated to all project partners via reporting in a predefined format. AUTH will be responsible for collecting the relevant information from all partners and for the preparation of the reports. The reported data will be discussed and evaluated during the meetings of the project management committee, to allow for the identification of potential risks towards achieving the set project aims and objectives. The information collected and the evaluation results will be submitted to the LIFE project evaluation committee along with project formal reporting.

In the context of Action E.1 Project Management, the PC will submit the following progress reports to EASME:

Table 2: Reports to EASME

Report	Deadline
Monthly Progress Reports	on the 25 th of each month
Mid-term Report	12/2019
Progress Report	06/2021
Final Report	09/2022

2.2. Deliverable Preparation Guidelines and Peer Review Process

A total of 42 deliverables will need to be submitted to the EASME in the course of LIFE GAIA Sense project. To ensure smooth and timely delivery of deliverable as well as homogeneous presentation, a set of guidelines has been formed. Moreover each deliverable will be reviewed by at least one partner with expertise in the field of the Deliverable and if possible by other partners, even if their expertise is in other fields, in order to combine different perspectives in the review.

3. Risk Management Plan - Summary

NP, as the coordinating beneficiary, will apply the relevant processes of its ISO 9001:2015 certified QMS to:

- Consider the external and internal issues that are relevant to the project, and the requirements of its interested parties,
- Determine the risks that need to be addressed to ensure the success of the project, and
- Take actions to address these risks, by implementing appropriate processes and techniques.

The **Project Coordinator** with the cooperation of the **Executive Board**, the **Technical Manager** and the rest of the project management roles will be mainly responsible to handle risks and inform all partners when necessary.

Risk management is as an overarching process that encompasses **risk planning** (identification, assessment, analysis, mitigation planning) and **risk abatement** (mitigation plan implementation, tracking, risk reassessment), in an **iterative cycle** until the end of the project, to ensure that risks are identified in a timely manner and handled proactively.

In more detail, this involves the **identification** of a risk, the **assessment** of its importance and the **evaluation** of whether the risk level is higher than the risk that could be accepted for the project. In case that a risk exceeds the acceptable levels, a risk **analysis** activity will be instantiated that will define the required actions, in order to set the risk within acceptable levels. In addition, the management of risks also involves the planning of the required activities to handle the risk, the redistribution of resources, the evaluation of the results, as well as ensuring the stability of the new status.



Figure 2 - Risk Management Process

Timely awareness and reaction to potential problems are crucial to effective risk management. The primary objective is to avoid reasonless project breaks, budget excess and uncontrolled time-schedule extensions, and for that purpose a number of internal and external risks were identified even from the



beginning of the project and will be constantly be updated; these are described in the following subsections.

Internal risks will be minimized and managed by using well-established methodologies for project planning and project control. The splitting of project work into individual packages also minimizes internal risks. The Project Coordinator and the Technical Manager in cooperation with the Executive Board will be mainly responsible to handle internal risks and inform all partners when necessary. The management of external risks lays primarily on the hands of the Project Board. External risks will be minimized by following closely on technological and business development in the field as well as on pertinent regulatory issues.

Annex I – NP's TUV CERTIFICATE

CERTIFICATE | ΠΙΣΤΟΠΟΙΗΤΙΚΟ | CERTIFICATA | شهادة | CERTIFICAT



CERTIFICATE

**Management System as per
EN ISO 9001 : 2015**

In accordance with TÜV AUSTRIA procedures, it is hereby certified that

**NEUROPUBLIC**
Information Systems & Technologies

NEUROPUBLIC S.A.
HEADQUARTERS: 6, METHONIS STR., GR-185 45 PIRAEUS, GREECE
BRANCH: 38 - 40 OCTOBER 26th STR., 3rd FL. ATRINA CENTER
GR-546 27 THESSALONIKI, GREECE

Applies a Quality Management System in line with the above Standard for the following Scope

- APPLICATION HOSTING SERVICES.
- ANALYSIS, DESIGN, DEVELOPMENT, CUSTOMIZATION, INSTALLATION, MAINTENANCE, TECHNICAL SUPPORT AND USERS TRAINING OF IT SYSTEMS.
- ANALYSIS, DESIGN, DEVELOPMENT, CUSTOMIZATION, INSTALLATION, MAINTENANCE, TECHNICAL SUPPORT AND USERS TRAINING OF GEOGRAPHICAL IT SYSTEMS.
- DESIGN, PRODUCTION, INSTALLATION, MAINTENANCE AND SUPPORT OF TELEMETRY STATIONS.

Certificate Registration No.: **01011148**

Valid until: 2021-04-15
Initial certification: 2015-06-19



Haralabos Ageloudis
Head of Management Systems & Products Certification Division
Certification Body
at TÜV AUSTRIA

Athens, 2018-04-16

This certification was conducted in accordance with TÜV AUSTRIA auditing and certification procedures and is subject to regular surveillance audits.

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