



D7.2

QUALITY ASSURANCE AND RISKS MANAGEMENT

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Author(s):

MARISA META (FIT Consulting srl)



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About GOLIA

GOLIA is a project focused on Governing, Optimising and Leveraging Innovation in cities through data-driven and social-optimum led approach. It aims to ensure an adaptive, accessible and just mobility system planned and governed with the help of digital assets, but also with the inclusive and co-creational policy making processes. Through the integration of STEM and SSH expertise and approaches, GOLIA will revolutionize spatial and mobility planning by co-developing and testing vision-led Social Optimum Mobility Index, a metric to assess urban mobility systems based not only on economic variables but also on indicators such as social support, healthy life quality or freedom to make life choices. The index will be location and time dependent to enable dynamic management of transport offer and spaces.

The project will analyse the policy making processes, citizen engagement practices and digital assets of the three Partner cities and with the gained knowledge, it will create an integrated, interdisciplinary and Adaptive Mobility Smart Governance Model. GOLIA aims at understanding to which extent and under which conditions, data generated by Smart Cities supported by AI-based tools novel communication and consultation channels and methodologies to engage citizens and stakeholders might foster the establishment of a new inclusive and adaptive mobility governance. GOLIA's goal is to identify governance models able to deliver policies resilient to political instability, extreme weather events, pandemics or any other more or less disruptive event, as they are co-developed, co-designed, and co-monitored by and for citizens and firms.

1 Deliverable Detailed Information

1.1 Key words

Quality Assurance, Risk Management

1.2 GOLIA Outputs Mapping to GA Commitments

[Guidance: This table should contain a description of how the deliverable maps to the work package and task requirements, that is how it addresses the deliverable and relevant task requirements set out in the GA.]

GOLIA GA Item	GOLIA GA Item Description	Document Chapter(s)	Justification
DELIVERABLE			
D7.2 QUALITY ASSURANCE AND RISKS MANAGEMENT	<i>Risk register is set-up at an early project stage. Each partner is responsible for monitoring potential risk to allow prediction, identification, and mitigation.</i>	<i>Chapter 6, section 6.1.3</i>	<i>Launch, structure and management of the risk register and mitigation plan tool is described</i>
TASK			
T7.2: Quality and Risk Management–Period 1	<i>This task involves the monitoring and control of all project outcomes so that these are of high quality and meet their objectives.</i>	<i>Chapter 5</i>	<i>Chapter 5 describes peer-review procedures (section 5.1), tools and guidelines (section 5.2) to ensure that project outcomes in GOLIA are of high quality and meet their objectives.</i>
	<i>It also involves identifying and assessing potential risks and designing mitigation/avoidance strategies. It includes: (i) supervision of all technical progresses to ensure consistency and technical quality; (ii) internal & external reviews of the project outcomes before their final</i>	<i>Chapter 6, sections 6.1.1, 6.1.2, 6.1.3</i>	<i>Chapter 6 describes procedures, tools, guidelines and responsibilities to timely identify and assess, risks in project activities as well as identifying and implementing mitigation actions, in</i>

	submission to the EC; (iii) overall project quality assessment; and (iv) risk analysis & management, based on FERMA method for covering different risk types (technical, behavioural, legal, and organizational).		line with the FERMA methods
	The GOLIA Technical and Innovation Manager (FIT) in collaboration with WP leaders, will monitor the development processes within GOLIA and arrange regular exchanges with coordinators of relevant projects and initiatives to identify overlap/synergies. A quality assurance and risks management plan will be delivered by month 6 (D7.2).	Chapter 6, section 6.1.3	Section 6.1.3 describes the procedures that each responsible partner must follow to keep the risk register updated.

Table 1: Deliverable Adherence to Grant Agreement deliverable and work description

2 Executive summary

The Quality assurance and Risks Management v1 outlines the foundational framework for quality assurance and risk management within the GOLIA project. In this regard, this document should be considered complementary to **D7.1 – Project Management Handbook**, as it outlines the specific procedures adopted by the GOLIA project management structure to ensure the highest quality standards and full alignment—both in content and timing—with the expected outcomes defined in the **Grant Agreement**.

In particular, it defines the mechanisms for monitoring and controlling all project outcomes to ensure they meet high-quality standards and align with their intended objectives.

The strategy encompasses four key components:

- **Technical supervision** to guarantee consistency with the DoA and excellence across all project activities.
- **Internal and external reviews** of project outputs prior to submission to the European Commission, ensuring compliance and rigor.
- **Comprehensive quality assessment** of the project's progress and deliverables.
- **Risk analysis and management**, applying the FERMA methodology to address a broad spectrum of risks—technical, behavioral, legal, and organizational.

An internal quality control system has been activated to oversee the implementation of quality procedures, peer reviews, and reporting activities. The GOLIA Technical and Innovation Manager (FIT), in collaboration with Work Package leaders, monitors development processes and foster exchanges with responsible of related initiatives to identify synergies and avoid duplication.

In addition, the project has activated structured processes for risk management and the identification of appropriate countermeasures. Risk management is understood as a continuous and systematic approach to identifying, analyzing, and mitigating potential threats that may emerge throughout the project's lifecycle.

To ensure timely intervention, a dynamic risk monitoring system has been put in place. This allows corrective actions to be promptly initiated in collaboration with the relevant partners whenever issues arise. A comprehensive set of risk categories—technical, behavioral, legal, and organizational—was already defined during the proposal phase. These risks were thoroughly mapped and paired with corresponding mitigation strategies to facilitate ongoing oversight.

To support this effort, a user-friendly risk register and mitigation plan have been developed (see Annex A). This tool enables the calculation of risk indicators and provides a structured way to document and track the risk assessment process throughout the duration of the project.

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3 List of abbreviations and acronyms

Acronym	Meaning
CA	Consortium Agreement
CT	Coordination team
DCM	Dissemination & Communication Manager
DPEM	Data Protection & Ethics Manager
EC	European Commission
EM	Exploitation Manager
FLM	Financial and Legal Manager
GA	General Assembly
ICB	Impact Creation Board
IM	Innovation Manager
KER	Key Exploitable Results
KPI	Key Performance Indicator
M	Month
MoM	Minutes of the meeting
OM	Office Manager
PC	Project Coordinator
PGB	Project Governing Board
PM	Person months
PU	Dissemination level: Public
QRM	Quality & Risk Manager
SOMI	Social Optimum Mobility Index
T	Task
TL	Task Leader

TPM	Technical Project Manager
TRL	Technology Readiness Level
WBS	Work Breakdown Structure
WP	Work Package
WPL	Work Package Leaders

Short Name	Partners mentioned in the deliverable
FIT	FIT CONSULTING SRL
BAX	BAX INNOVATION CONSULTING SL
TT	Fondazione Transform Transport ETS
PAN	PANTEIA BV
CERTH	ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS
IDSA	INTERNATIONAL DATA SPACE E. V.
INLE	INLECOM INNOVATION ASTIKI MI KERDOSKOPIKI ETAIREIA
MPACT	Mpact vzw
TTS	TTS Italia
UITP	UNION INTERNATIONALE DES TRANSPORTS PUBLICS
PAVE	Partners for Automated Vehicle Education Europe Aisbl
ALICE	Alliance for Logistics Innovation through Collaboration in Europe, ALICE AISBL
EPA	EUROPEAN PARKING ASSOCIATION aisbl
POLIS	POLIS AISBL
IDIT	Institut Du Droit International Des Transport Et De La Logistique
SINTEF	SINTEF AS
EUR	EUROCITIES ASBL

UKEP	Útvar Koordinace Evropských projektů města Plzně, p.o.
FLO	Comune di Firenze
ANTWERP	Stad Antwerpen
SUPSI	SCUOLA UNIVERSITARIA PROFESSIONALE DELLA SVIZZERA ITALIANA

4 Purpose of the deliverable

GOLIA is committed to developing an innovative, holistic, and cross-disciplinary systems-thinking approach, underpinned by AI-driven tools and modern communication strategies. This methodology is designed to actively involve citizens and stakeholders in the co-creation of an adaptive Smart Mobility Governance Model. The ultimate goal is to foster a more inclusive, equitable, and accessible mobility system—one that promotes inclusive transport policies, enhances public spaces, and balances individual choices with collective interests.

To ensure the successful implementation of the GOLIA project, robust quality assurance and risk management frameworks are essential. GOLIA is focused on delivering high-quality outcomes; therefore, quality assurance mechanisms are in place to guarantee that all deliverables meet established standards and stakeholder expectations.

As outlined in D7.1, the project management structure has been designed to support effective coordination, streamlined communication, transparent decision-making processes, and a well-defined governance model.

The quality assurance strategy contributes to the project's success by:

- **Ensuring goal alignment:** Validating that project outputs consistently meet predefined quality benchmarks.
- **Regulatory compliance:** Upholding legal and procedural standards to reinforce credibility and accountability.
- **Enhancing stakeholder satisfaction:** Delivering high-quality results that strengthen trust, reputation, and future collaboration potential.
- **Mitigating risks:** Preventing issues such as legal disputes or reputational damage through rigorous quality control.

Given the complexity of GOLIA—characterized by advanced technological and social innovations, diverse stakeholder involvement, and substantial funding—the risk management component plays a vital role in safeguarding the project's objectives, timeline, and budget.

Risk management supports the project by:

- **Reducing the likelihood of failure:** Proactively identifying and addressing potential disruptions such as delays, cost overruns, or resource constraints.
- **Controlling costs:** Enabling early detection of risks and implementation of mitigation strategies to minimize financial impact.
- **Maintaining stakeholder confidence:** Demonstrating a proactive approach to risk that reassures partners and funders.
- **Optimizing resource allocation:** Ensuring that efforts are focused on critical areas and vulnerabilities are addressed efficiently.

5 Quality assurance

The quality of GOLIA's project outputs is safeguarded through a comprehensive Quality Assurance Plan. This section outlines how GOLIA will implement structured procedures and actions to ensure the consistency and reliability of its outputs.

As part of this plan, the project will adopt an internal review mechanism aimed at maintaining high standards across all results and deliverables. Deliverables represent the core outputs of the project, and the lead beneficiary assigned to each is responsible for its overall quality. Quality control will be primarily carried out through a formal review process, whereby designated reviewers evaluate draft versions and either approve or request revisions before final submission.

Through this structured approach, GOLIA ensures that its project management remains robust, transparent, and aligned with the expected quality standards.

5.1 Internal peer-review procedure

The internal review procedure represents one of the key instruments for ensuring the high quality of project outcomes. Each Work Package Leader (WPL) holds responsibility for the quality of the results produced within their respective Work Package.

Project deliverables serve as the primary outputs, consolidating the results and achievements of the GOLIA project. To uphold the highest standards, each deliverable will undergo an internal peer review process within the Consortium. This review will be conducted by the relevant WP leader and an additional project partner, selected based on their expertise and provided they have not contributed to the drafting or development of the deliverable under review.

The peer review team is tasked with evaluating both the structure and content of the deliverable prior to its submission to the European Commission. In addition, FIT, acting as Project Coordinator (PC) and Quality Manager (QM), will carry out a final review of all deliverables before submission.

The QM, with the support of Steering Committee (SC), has elaborated a table which defines the partners in charge of the internal review of deliverables:

no.	Work Package No	Lead Beneficiary	Due Date (month)	Deadline	Peer reviewer 1	Peer reviewer 2	Peer review Start	Peer review end
D7.1	WP7	FIT	2	7/31/2025	INLE	BAX	7/1/2025	7/10/2025
D5.2	WP5	EUR	3	8/31/2025	FIT	Mpact	8/1/2025	8/10/2025
D7.2	WP7	FIT	4	9/30/2025	INLE	TTS	8/31/2025	9/9/2025
D2.1	WP2	SUPSI	6	11/30/2025	FIT	PAN	10/31/2025	11/9/2025
D7.3	WP7	INLE	6	11/30/2025	IDIT	EUR	10/31/2025	11/9/2025
D1.3	WP1	IDIT	9	2/28/2026	BAX	EUR	1/29/2026	2/7/2026
D1.1	WP1	BAX	12	5/31/2026	EUR	IDSA	5/1/2026	5/10/2026
D1.2	WP1	SINTEF	12	5/31/2026	BAX	FIT	5/1/2026	5/10/2026
D2.2	WP2	SUPSI	12	5/31/2026	SINTEF	IDIT	5/1/2026	5/10/2026
D1.4	WP1	CERTH	13	6/30/2026	BAX	EPA	5/31/2026	6/9/2026
D5.1	WP5	EUR	13	6/30/2026	SINTEF	POLIS	5/31/2026	6/9/2026

D2.3	WP2	INLE	18	11/30/2026	SUPSI	UKEP	10/31/2026	11/9/2026
D2.4	WP2	SINTEF	18	11/30/2026	SUPSI	ANTWERP	10/31/2026	11/9/2026
D2.5	WP2	CERTH	18	11/30/2026	SUPSI	FLO	10/31/2026	11/9/2026
D5.3	WP5	EUR	18	11/30/2026	PAN	ALICE	10/31/2026	11/9/2026
D7.4	WP7	INLE	18	11/30/2026	FIT	IDIT	10/31/2026	11/9/2026
D3.1	WP3	BAX	19	12/31/2026	SINTEF	FIT	12/1/2026	12/10/2026
D8.1	WP8	FIT	19	12/31/2026	INLE	BAX	12/1/2026	12/10/2026
D3.2	WP3	BAX	32	1/31/2028	SINTEF	CERTH	1/1/2028	1/10/2028
D3.3	WP3	SINTEF	34	3/31/2028	UITP	TT	3/1/2028	3/10/2028
D4.1	WP4	PAN	35	4/30/2028	CERTH	SUPSI	3/31/2028	4/9/2028
D4.2	WP4	SINTEF	36	5/31/2028	PAN	FIT	5/1/2028	5/10/2028
D6.1	WP6	EUR	36	5/31/2028	SINTEF	UITP	5/1/2028	5/10/2028
D6.2	WP6	EUR	36	5/31/2028	ALICE	PAVE	5/1/2028	5/10/2028
D6.3	WP6	EUR	36	5/31/2028	SINTEF	PAN	5/1/2028	5/10/2028
D8.2	WP8	FIT	36	5/31/2028	INLE	TTS	5/1/2028	5/10/2028
D8.3	WP8	INLE	36	5/31/2028	FIT	EUR	5/1/2028	5/10/2028

Table 2: Peer-reviewers table

To ensure the highest quality of project deliverables, GOLIA has established a structured internal review process supported by clearly defined evaluation criteria. Peer reviewers assess each deliverable based on the following dimensions:

- **Alignment with stated objectives and requirements:** Does the document effectively address its intended goals?
- **Logical structure:** Is the content organized in a coherent and methodical way, covering objectives, methodologies, results, and recommendations?
- **Clarity of concepts and conclusions:** Are methodologies, analyses, and findings clearly articulated and easy to follow?
- **Language quality:** Is the English style fluent, professional, and accessible?
- **Presentation and formatting:** Does the document comply with the established layout and visual standards?

A specific timeline has been defined to guide the internal review process, ensuring timely and thorough quality control:

1. **Step 01 – ToC Agreement**

Timing: Task start + 3 months

The Lead Beneficiary (LB) shares the proposed Table of Contents (ToC) with the WP Leader for validation and alignment.

2. **Step 02 – Draft Submission for Review**

Timing: 1 month before the deadline

The LB submits the full draft of the deliverable to the WP Leader and a designated peer reviewer, selected based on subject expertise and impartiality (i.e., not involved in drafting the deliverable).

3. Step 03 – Feedback Collection

Timing: 3 weeks before the deadline

The WP Leader and peer reviewer provide structured feedback. Reviewers are expected to complete their evaluation within 7 calendar days.

4. Step 04 – Final Check by Coordinator

Timing: 10 days before the deadline

The revised version of the deliverable, incorporating reviewer feedback, is submitted to the Project Coordinator (FIT) for a final quality check.

5. Step 05 – Submission to EC

Timing: 3–5 days before the deadline

Upon confirmation that all comments have been addressed, the final version is submitted to the EC Portal by the Coordinator. All consortium partners are notified of the submission to ensure transparency and shared awareness of project progress.

In cases where the deliverable does not meet the expected standards or is not submitted on time, the Project Coordinator will take appropriate action in accordance with the Consortium Agreement and contractual obligations.

The process of internal review is summarized in the following diagram:

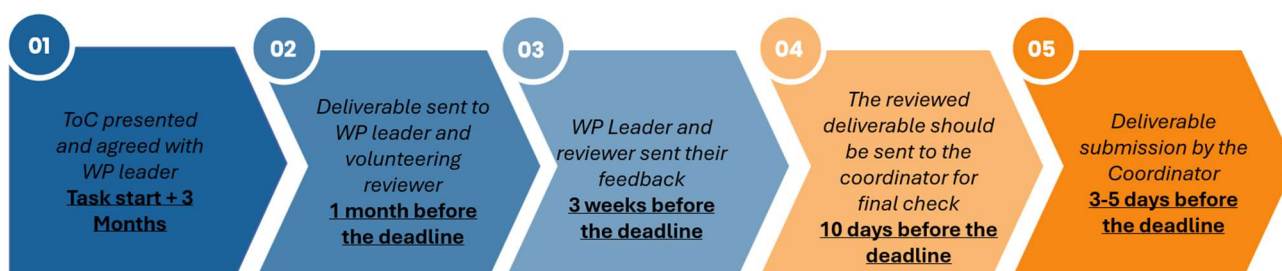


Figure 1: Deliverables Peer review process

5.2 Deliverable and documents preparation guidelines

All authors are required to use the official GOLIA Deliverable Template when drafting their deliverables and must adhere to the formatting and structural guidelines specified within the template.

Deliverable leaders are encouraged to keep reports concise, ideally not exceeding 100 pages. Exceptions may be considered in cases where extensive visual content (e.g., figures, tables) is necessary to support the analysis.

To ensure that the work carried out under each task is properly documented and aligned with the Grant Agreement, the deliverable templates—developed as part of the project’s visual identity—now include an introductory table (see Table 1 of this document). In this table, the author must indicate which sections of the document correspond to the relevant tasks and sub-tasks.

Deliverables must be written in British English¹ with a preference for clear and accessible language to ensure readability across all consortium partners. While technical terminology is appropriate where required, authors should strive for consistency in language use—both within the document and across other project deliverable.

Each deliverable should begin with a **glossary of terms**, and acronyms or technical expressions should be spelled out in full upon first use to facilitate comprehension.

If **Generative AI tools** (e.g. ChatGPT, Copilot, etc.) are used during drafting, their role should be limited to supporting tasks such as refinement, editing, or summarization. Any significant AI-generated content must be reviewed, validated, and clearly attributed under the responsibility of the authors. Use of such tools should comply with the project's data management and ethics policies, and be disclosed appropriately in the deliverable.

References to external sources must follow a consistent citation style throughout the document. While authors may choose their preferred format, this deliverable adopts the **IEEE citation style**. In case of uncertainty, authors are advised to consult the **EU Style Guide** for further guidance².

The **main beneficiary** or **deliverable owner** holds primary responsibility for the quality and completeness of each deliverable.

Once the Project Coordinator has submitted the final version to the European Commission, both **DOC and PDF formats** of the deliverable will be uploaded to the project's document repository. Additionally, the Coordinator will retain a secure backup copy for archival and safety purposes.

In compliance with the GA, the deliverables are classified according to the following types:

- **R:** Document, Report.
- **OTHER:** Other.
- **ETHICS:** Ethics requirement.
- **DMP:** Data Management Plan.

¹ European Commission, "English Style Guide," 2024. [Online]. Available: https://commission.europa.eu/system/files/2023-11/styleguide_english_dgt_en.pdf. [Accessed 22 July 2024]

² Publications Office of the European Union, "Interinstitutional Style Guide," 2022. [Online]. Available: <https://op.europa.eu/en/publication-detail/-/publication/01ed788a-d266-11ec-a95f-01aa75ed71a1>. [Accessed 22 July 2024].



6 Risk management

An essential component of GOLIA's quality assurance strategy is its structured approach to risk management. This process involves the systematic identification, analysis, and mitigation of potential risks that may arise during the project's implementation. Continuous risk monitoring ensures that, should any issues emerge, appropriate corrective actions can be promptly initiated in collaboration with the relevant partners.

Drawing on the Consortium's extensive experience in managing complex international initiatives and its technological expertise in communication and networking, GOLIA has identified the following primary risk categories:

- **Technical risks:** Challenges stemming from insufficient expertise to address unforeseen technical difficulties.
- **Financial risks:** The potential deterioration of a partner's financial stability, which could lead to a suspension or significant reduction of its project activities.
- **Human resource risks:** The withdrawal of key personnel whose roles are critical to the project's success.

The interplay between these risk categories is also considered, as their combined impact could pose a greater threat to project continuity. However, the technical risk level is significantly mitigated by the composition of the GOLIA Consortium, which includes a diverse and experienced group of research institutions, universities, consultancies, associations, and municipalities—each with a proven track record in their respective fields of innovation.

In the event of financial or resource-related disruptions, corrective measures may include redistributing the affected tasks among remaining partners, subcontracting them to external entities, or applying a hybrid approach. These measures will be selected based on a careful assessment of their potential impact and relevance to the project's overall objectives.

Within the GOLIA framework, a **risk** is defined as a future event—uncertain in its occurrence—that could negatively influence the project's progress or outcomes. Each risk is characterized by its **probability of occurrence** and **severity of impact**, with formal definitions provided in the subsequent sections of this deliverable.

The risk management methodology outlined herein is designed to proactively anticipate potential challenges and establish strategies to either minimize their impact or prevent them from materializing altogether.

6.1 Risk and countermeasure identification

In the context of the GOLIA project, a **risk** is defined as a potential event or condition that may hinder the achievement of project objectives within the established constraints of cost, schedule, performance, and quality. Each risk is characterized by two core dimensions:

- The **probability** of failing to achieve a specific outcome
- The **impact** or consequences of that failure on the project

Additionally, a risk may arise when a threat exploits vulnerabilities in an asset or group of assets, potentially resulting in damage, loss, or disruption. Risks are typically assessed through a combination of their **likelihood of occurrence** and **severity of effect**, in line with the principles of the **FERMA (Federation of European Risk Management Associations)** standard.

To facilitate effective monitoring and mitigation, GOLIA classifies risks into five main categories:

- **Technical (TEC) Risks:** Challenges in meeting technical specifications or performance requirements that could compromise the delivery of project outcomes.
- **Project Management (PM) Risks:** Risks related to time and cost management, including unrealistic scheduling, resource shortages, or failure to meet budgetary targets. Examples include delays due to underestimated timelines, inaccurate cost projections, or insufficient mitigation of technical dependencies.
- **Adoption (AD) Risks:** Barriers to the uptake or integration of project outputs, which may affect stakeholder engagement or the practical implementation of developed solutions.
- **Deliverable (DEL) Risks:** Issues concerning the consistency, completeness, or relevance of deliverables in relation to the Description of Action (DoA), potentially impacting the quality or acceptance of project outputs.
- **Other (OTH) Risks:** Any risks that do not fall within the above categories but may still pose a threat to the project's success, such as legal, ethical, or organizational challenges.

This classification supports a structured and proactive approach to risk management, enabling the GOLIA Consortium to anticipate potential disruptions and implement targeted mitigation strategies throughout the project lifecycle.

6.1.1 Risk identification and assessment

A **risk rating** in GOLIA refers to the value assigned to a specific risk event—or to the overall project—based on an analysis of its **likelihood of occurrence**, **impact**, **detectability**, and **recoverability**. This rating helps determine the level of attention and mitigation required for each risk.

Risk ratings in GOLIA are defined according to the following criteria:

- **Insignificant or Light Risk:** The risk has minimal or no potential to increase costs, disrupt the schedule, or reduce performance. It can be managed through routine project activities and standard oversight.
- **Moderate Risk:** The risk may lead to a moderate increase in cost, delays, or a decline in performance and/or quality. Targeted actions and dedicated management attention may be necessary to keep the risk under control.
- **Severe or Extremely Severe Risk:** The risk is likely to cause substantial cost escalation, major schedule disruption, or significant degradation in performance and/or quality. This type of risk requires intensive mitigation efforts and high-priority management attention. In certain cases, it may need to be reported to the European Commission.

The **initial risk identification** was conducted during the proposal phase, resulting in a preliminary list of risks and associated countermeasures at the project level. Each risk was assessed based on its **likelihood (L)** and **severity (S)**, using a three-tier scale: **Low (L)**, **Medium (M)**, and **High (H)**. This prioritization was based on the estimated impact, time required for mitigation, and probability of occurrence.

Risks were then grouped into five categories:

- **Technical (TEC)**
- **Project Management (PM)**
- **Adoption (AD)**

- **Deliverable (DEL)**
- **Other (OTH)**

The initial list of risks identified during the proposal stage is documented in **Annex A**. A **bottom-up risk identification process** was subsequently carried out to validate and expand the initial assessment. This approach enabled WP Leaders and Task Leaders to gain a comprehensive understanding of potential risks associated with the project's implementation, including those specific to the **two Living Labs** and **six use cases**.

Building on the initial list, all identified risks—whether cross-cutting across multiple Work Packages or affecting the project as a whole—were entered into the **Risk Register and Mitigation Plan**, using the “General Risks” table/sheet.

6.1.1.1 Risk mapping

The creation of the Risk Register and Mitigation Plan in GOLIA followed a structured multi-step process. Initially, risks were selected from the preliminary list compiled during the proposal phase, ensuring that only the most relevant and potentially impactful risks were considered. These risks were then grouped into five predefined categories: **Technical (TEC)**, **Project Management (PM)**, **Adoption (AD)**, **Deliverable (DEL)**, and **Other (OTH)**.

Depending on the specific hubs and Steering Committees (SCs) where the use cases are implemented, these components may act either as enablers or barriers. Their classification is essential to the identification process, as it helps pinpoint the most critical areas, define appropriate and actionable countermeasures, and guide effective mitigation efforts throughout the project.

Risk identification represents the first and foundational step in the assessment process. It involves a thorough review of the entire GOLIA project plan to detect events or conditions that could jeopardize the achievement of project objectives. The procedure for identifying risks includes the following steps:

1. **Understand the project's requirements and overall quality and performance goals**, including the operational (functional and environmental) conditions under which these goals must be met, as outlined in the Description of Action (DoA).
2. **Identify the processes and tasks** necessary to produce the expected results.
3. **Evaluate each activity or task** against potential sources or areas of risk.

Following this, the selected risks were formally incorporated into the Risk Register and Mitigation Plan. In some cases, countermeasures were broken down into multiple entries to ensure that each idea was clearly defined and addressed individually—maintaining a one-to-one correspondence between risk and mitigation action.

6.1.1.2 Risk management organisation and risk analysis process

The **Quality Manager (QM)** serves as the overall risk manager for the GOLIA project and is responsible for the following tasks:

- Providing regular briefings to the Consortium on the status of GOLIA-related risks during project meetings
- Monitoring and tracking efforts to reduce high-risk items to acceptable levels
- Facilitating Consortium-wide risk assessments during project meetings

- Consolidating risk reports and documentation submitted by Work Package Leaders (WPLs), especially those required for reviews by the European Commission
- Maintaining and updating the Risk Management tool as part of the supporting processes
- Ensuring the provision and upkeep of the risk information form

Each **Work Package Leader (WPL)** is responsible for managing risks within their respective work packages. Their responsibilities include:

- Identifying risks
- Conducting risk analysis
- Managing and mitigating risks
- Reporting moderate or high risks to the QM
- Monitoring ongoing risks
- Briefing WP members on the current risk status
- Tracking efforts to reduce low and moderate risks to acceptable levels
- Preparing risk briefings, reports, and documentation required for project reviews

Risk assessment involves identifying critical events or processes that could negatively impact the project, followed by an analysis to determine their likelihood of occurrence, potential variance from expected outcomes, and associated consequences. This is an iterative process, combining previously identified risks with new risks emerging from current milestones and deliverables, as outlined in the Description of Action (DoA).

Risk analysis evaluates each identified event to determine

- Possible outcomes
- Variance from best practices
- Likelihood (probability) of occurrence
- Consequences (impact)
- Detectability (ability to perceive the risk before it materializes)
- Recoverability (ability of the responsible partner to mitigate the risk effectively)
- Severity of the problem

Once these factors are assessed, the risk event is rated according to its severity level:

- **Insignificant**
- **Light**
- **Moderate**
- **Severe**
- **Extremely Severe**

The adopted procedure for analysing risks includes:

- Compiling all identified risks
- Assigning values for likelihood, impact, detectability, and recoverability to each risk event to establish a rating using predefined risk indicator classes
- Conducting a quantitative analysis based on the risk indicator
- Final assessment of the severity level

This process results in a comprehensive overview of the project's risk status throughout its lifecycle

6.1.2 Risk monitoring process and procedure

Once risks in the GOLIA project have been identified and assessed in advance, they are subject to continuous monitoring throughout the project's duration. This process involves tracking the status of each identified risk, reassessing its likelihood and impact when necessary, and evaluating its detectability and recoverability. It also includes monitoring the effectiveness of mitigation measures and identifying any new risks that may require immediate attention.

Risk monitoring provides valuable insights into how well the proposed countermeasures are functioning. If a risk materializes or its severity increases, appropriate actions will be taken to minimize its impact. These actions may include activating contingency plans, reallocating resources, or adjusting project timelines. Regular monitoring ensures that responses to risks are both proactive and timely.

Additionally, the monitoring process helps uncover new risks that may emerge during the development of the GOLIA project or the implementation of the Living Labs. It systematically evaluates the performance of risk-handling actions by comparing expected outcomes with actual results, helping determine whether adjustments are needed.

To ensure that significant risks are properly tracked, all risk-handling actions are documented in the Risk Register and Mitigation Plan and reviewed during Consortium meetings. This documentation helps assess the impact of mitigation measures on cost, schedule, and overall project performance.

Risk management in GOLIA is a continuous process. Insights gained from monitoring are fed back into the system to reassess and refine mitigation strategies, in collaboration with Work Package Leaders (WPLs), the Project Coordinator (PC), and the Quality Manager (QM).

There are four primary techniques for handling risks:

- **Avoidance:** Implementing tasks that prevent the risk event from occurring
- **Control:** Monitoring environmental factors that may influence an already assessed risk
- **Transfer:** Reassigning the risk to reduce its potential impact
- **Assumption:** Planning based on the expectation that the risk event will occur

Each identified risk should be evaluated against these techniques to determine the most appropriate handling strategy, considering feasibility, expected effectiveness, cost and schedule implications, and impact on technical quality and performance.

The evaluation of handling options is the responsibility of the respective WP Leader or, in the case of high-risk events, the Project Coordinator. Once approved, these strategies are integrated into the relevant work packages or project management plans.

For each selected handling option, the responsible team member will define specific tasks to address the risk. These task descriptions must include:

- A clear explanation of the required actions

- The level of effort involved
- The resources needed
- A proposed schedule, including start and completion dates
- Timing of key risk reduction activities
- Links to major project milestones
- A cost estimate
- A list of assumptions used in developing the handling strategy

6.1.3 Risk register and mitigation plan

The primary tool for tracking identified risks in GOLIA is the **Risk Register and Mitigation Plan** (Annex A). The main contents to be included in the tool have been presented to all project partners in the KOM, while the full tool has been officially shared with the Steering Committee during the first SCM held on July 2025. This tool is intended for use exclusively by **Work Package Leaders (WPLs)**, members of the **Steering Committee (SC)**, and **Task Leaders**, who should only access and update it after confirming the risk(s) with their respective WPL. In particular, WP leaders are required to update the Risk Register on a Monthly Basis, in advance to the SCM.

The table is structured around the Work Packages defined in GOLIA, creating a direct link between each risk and the partner responsible for its oversight. In some cases, the WP Leader or Risk Manager may differ from the partner responsible for addressing the risk. In such instances, the designated partner must provide a concrete action plan to mitigate the issue.

Each risk should be recorded in the corresponding sheet based on the Work Package it pertains to. If a risk affects multiple Work Packages or has broader implications for the project as a whole, it should be entered into the “**General Risks**” sheet provided within the tool.

The risk table offers a straightforward method for quantifying the severity of each issue. Partners identifying a risk are required to input the following values:

- **Probability** of the risk (scale: 1 = lowest probability, 10 = highest)
- **Impact** across relevant consequence areas (scale: 1 = lowest impact, 10 = highest)
- **Detectability** of the risk (scale: 1 = lowest detectability, 10 = highest)
- **Recoverability** of the risk (scale: 1 = lowest recoverability, 10 = highest)

Based on these inputs, the tool calculates a **risk indicator** using a scale ranging from **1–8**, **8–64**, **64–216**, **216–512**, to **512–1000**. This indicator is then mapped to one of the five predefined **risk rating categories**: **Extremely Severe**, **Severe**, **Moderate**, **Light**, or **Insignificant**.

The Risk Register and Mitigation Plan is updated **every six months** by all relevant partners. Each partner is responsible for adding, modifying, or removing risks based on the current phase and evolution of the GOLIA project.

7 Conclusions

This first version of the Quality and Risk Management Plan outlines the foundational procedures and mechanisms established during the initial reporting period (M1–M18) of the GOLIA project. In alignment with Task T7.2, the plan defines the framework for monitoring technical progress, ensuring consistency and quality across all project outcomes, and implementing structured risk management practices based on the FERMA methodology.

Key activities carried out during this period include the activation of internal quality control processes, the integration of co-design and co-assessment principles across work packages, and the coordination of peer-reviews prior to deliverable submission. Particular attention has been given to aligning deliverable content with the Grant Agreement, supported by the introduction of standardized templates that map document sections to relevant tasks and sub-tasks.

Risk management has been approached as an iterative process, with clear roles assigned to the Quality Manager and Work Package Leaders. The classification and evaluation of risks—technical, behavioural, legal, and organizational—have been structured to ensure transparency and traceability throughout the project lifecycle.

Two additional versions of this plan will be submitted at Month 19 and Month 36, respectively, to reflect the evolution of quality assurance and risk management activities during the second reporting period.

Annex A – Risk Register and Mitigation plan

#	Type	WP	Owner	Risk	Probability (1-10)	Impact (1-10)	Detectability (1-10)	Recoverability (1-10)	Risk Indicator (1-10)	Problem severity (1-10)	Proposed mitigation measures	Status	Closing remarks
1	TEC	WP1, WP6	EUR	Issues on the formation of the Impact Creation Board and Community of Practice (late formation, difficulties in assembling the group);	10	10	10	4	143	Moderate	Prioritising the creation of the expert groups in the early stages of the project	OPEN	
2	TEC	WP1, WP2	SUP SI	Data security and privacy risks	3	8	5	8	37	Light	Use advanced encryption methods and secure data storage solutions to protect data. Anonymize personal data to protect individual privacy while still allowing for useful analysis. Comply with the General Data Protection Regulation (GDPR)	OPEN	
3	TEC	WP2, WP3	SUP SI	Data interoperability issues, lack of standardized data formats and protocols can lead to interoperability issues, making it difficult to integrate data from different sources	4	6	8	8	30	Light	Use widely accepted data standards and involve sites since the beginning of the data format collection	OPEN	
4	TEC	WP1, WP2, WP3	SUP SI	Stakeholder reluctance to share data, organizations may be reluctant to share data due to concerns about politics (city administration) or loss of control over data	7	9	8	4	105	Moderate	"Implement data sovereignty principles to ensure that data owners retain control over their data.		

5	TEC	WP3	SINT EF	Potential low stakeholders' participation, which may result in a lack of diverse perspectives, leading to less effective and inclusive solutions	5	8	4	4	100	Moderate	Proactive engagement strategies would be implemented, such as regular communication, transparent decision-making processes, and offering incentives for participation. Additionally, partners in the consortium have already well-established networks to build on, as well as the cities, having previous experience in stakeholder participation and expert groups already in place	OPEN	
6	TEC	WP3	BAX	Potential misalignment between the various stakeholders involved. Differences in priorities, expectations, or communication styles among the stakeholders could lead to delays, conflicting objectives, or incomplete data collection	7	7	10	6	61	Light	To mitigate this risk, it is crucial to establish clear communication channels, define roles and responsibilities early on, and ensure continuous stakeholder engagement and alignment throughout the project. Regular feedback loops and transparent decision-making processes can also help in addressing and resolving any emerging conflicts or misunderstandings promptly	OPEN	
7	TEC	WP3	BAX	The activities might not fully address the needs of marginalized or underrepresented groups, leading to unequal access to mobility solutions. This could exacerbate existing inequalities rather than mitigating them.	3	10	7	1	75	Moderate	This could be mitigated with a proper stakeholder identification and fostering continuous stakeholder engagement with iterative processes	OPEN	
8	TEC	WP4	PAN	Difficulty in accessing comprehensive data from various governance levels of follower	7	8	8	10	62	Light	"Utilize multiple sources and verification methods to ensure completeness and accuracy of information.		

				sites (EU, national, city) due to bureaucratic or logistical challenges									
9	DEL	WP4	PAN	Risk of bias in research findings if inclusivity measures do not adequately represent diverse community perspectives	4	7	10	10	28	Light	Implement rigorous data validation and sensitivity analysis to mitigate bias in research findings	OPEN	
10	TEC	WP4	PAN	Difficulty in translating theoretical synergies into practical applications across different sectors and cities	5	6	7	8	40	Light	Pilot test the guidelines in three different case studies (Antwerp, Florence, and Plsen) to identify and address implementation challenges	OPEN	
11	TEC	WP4	PAN	Risk of technological barriers or compatibility issues when transferring GOLIA tools to different followers' urban contexts	7	6	8	9	49	Light	Pilot test the guidelines in three different case studies (Antwerp, Florence, and Plsen) to identify and address implementation challenges	OPEN	
12	OTH	WP5, WP6	EUR	Inability to disseminate project results in person due to sanitary or political emergency in Europe	3	9	5	8	42	Light	In case of occurrence of emergency similar to the COVID-19 pandemic the dissemination actions will be reorganised to take place online	OPEN	
13	OTH	WP6	EUR	Low or lack of interest for cities to join CoP and/or remain engaged in the CoP activities	10	10	9	9	11 1	Moderate	Develop clear communications around the value of joining the CoP, coordinate with sister projects and consortium partners to promote it and manage expectations for those who join	OPEN	
14	PM	ALL	INLE	Risk of incomplete data or delays in obtaining necessary information from other WPs.	6	8	8	6	69	Moderate	Ensure clear and detailed data collection protocols are established upfront. Conduct regular meetings and follow-ups with stakeholders to address any data gaps or delays promptly	OPEN	

15	PM	WP7, WP8	FIT	Partner not performing or dropping out.	9	2	9	8	21	Light	The consortium will redistribute tasks/responsibilities/resources not fulfilled among the consortium or add a substitute / equivalent partner, or a combination of the two. This risk is covered by CA and project structure and management processes described.	OPEN	
16	PM	WP7, WP8	FIT	Failing agreement between the partners on the technical and management aspects of the project.	5	8	6	7	62	Light	Project Management structure and processes setup a well-defined decision-making mechanism to allow disputes including the Project Steering Team. There is a WP-Task leadership structure, and there is an overall Technical Manager appointed by FIT.	OPEN	
17	PM	MS1	BAX	Delay in the validation of the minimum requirements due to holiday	10	3	10	10	30	Light	Catch up as soon as the different partners return from holidays, delaying the MS of some weeks.	CLOSE D	-