



# 5G DEPLOYMENT FOR SMART INDUSTRY USAGE

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## D1.2: RISK MANAGEMENT PLAN

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## **1 Executive Summary**

The risk management plan outlines the proactive approach to identify, assess, and mitigate potential risks that may occur during the execution of the project. This deliverable serves as the risk management plan for the 5GEARING project. Adhering to the risk management plan will enable the successful execution of the project by tackling uncertainties and challenges that may arise during the project. The comprehensive approach to risk identification, assessment, and mitigation will help us maintain project resilience, deliver results in line with the expectations, and uphold the overall success of the project.

## **2 Introduction**

Risks can pose significant challenges to the successful execution of the project. A [risk management plan \(RMP\)](#) serves as a crucial tool to anticipate, address, and mitigate threats. The [5GEARING RMP](#) will help the project become resilient, proactive, and prepared to handle challenges and uncertainties. It will promote better decision-making and ensure that risks are considered throughout the lifecycle of the project. This [RMP](#) will serve as a pivotal document that outlines our approach to risk identification, assessment, mitigation, and monitoring.

### **2.1 Objective of the report**

The [RMP](#) defines how potential risks during the lifetime of the project will be managed. This [RMP](#) defines how risks associated with the 5GEARING project will be identified, analyzed, and managed. It outlines how risk management activities will be performed, recorded, and monitored during the project duration. Moreover, the document identifies a few potential risks and defines the corresponding mitigation strategy.

### **2.2 Structure of the document**

This document is structured as follows. Chapter 3 defined the risk management procedure including identification, analysis, response planning, and monitoring of risks. Chapter 4 assesses identified potential risks to the 5GEARING projects and provides a quantitative analysis as well as the corresponding mitigation strategy and Chapter 5 concludes this deliverable report.

## **3 Risk management procedure**

The steering committee of the 5GEARING project will ensure that risks are actively identified, analyzed, and managed throughout the project's life. Risks will be identified as early as possible in the project to minimize their impact. The steps for accomplishing this are outlined in the following subsections.

### **3.1 Risk identification**

The project risks may include both technical and non-technical aspects. Technical risks correspond to unknown or unexpected technical factors that may pose a potential threat to achieving the milestones of the project. Non-technical risks, on the other hand, refer to undesired events or environmental factors that may harm the

project execution and cause delays in achieving the project objectives. Therefore, it is important to identify risks at an early stage. Risk identification will involve the project team evaluating both technical and non-technical risks during the execution of the project such that an appropriate risk mitigation strategy can be devised to minimize the effects of the corresponding risks. Careful attention will be given to the project deliverables, tasks, milestones, cost and effort estimates, resource plan, and project objectives.

### **3.2 Risk analysis**

All identified risks will be assessed with their intensity and the corresponding damage it can cause if an appropriate mitigation strategy is not devised. Furthermore, all potential risks will be evaluated to determine the importance and impact of the risk such that an appropriate mitigation strategy is discussed with the project team and implemented accordingly. The probability and impact of occurrence for each identified risk will be assessed using the following approach:

#### **Probability**

- High: Greater than 70% probability of occurrence
- Medium: Between 30% and 70% probability of occurrence
- Low : Below 30% probability of occurrence

#### **Severity**

- High (between 0.7 and 1): Risk that has the potential to greatly impact project cost, project schedule, or expected milestones
- Medium (between 0.4 and 0.7): Risk that has the potential to slightly impact project cost, project schedule, or expected milestones
- Low (between 0.1 and 0.4): Risk that has relatively little impact on cost, schedule, or expected milestones

#### **Risk Level**

The analysis of risk levels that have been prioritized using the risk analysis process and their effects on project activities will be estimated, a rating will be applied to each risk based on this analysis, and then documented for the risk management plan. The risk levels are defined as a product of risk probability and risk severity as follows.

- High risk (between 7 and 10): A detailed management planning is required at the steering committee level

- Significant risk (between 4 and 7): The work package lead plans the mitigation strategy, and steering committee attention is needed
- Moderate risk (between 2 and 4): The task lead plans the mitigation strategy while the work package leader and coordinator's attention needed
- Low risk (between 1 and 2): The task lead plans the mitigation strategy

### **3.3 Risk response planning**

All risks will be discussed and an appropriate mitigation strategy will be devised. A project member will be assigned to constantly the risk so that it does not become a threat and harm the progress of the project.

For each risk, one of the following approaches will be selected.

- Avoid: eliminate the threat by eliminating the cause
- Mitigate: identify ways to reduce the probability or the impact of the risk
- Accept: nothing will be done because the risk has no significant impact

For each risk that will be mitigated, the project team will identify ways to prevent the risk from occurring or reduce its impact or probability of occurring. This may include prototyping, adding tasks to the project schedule, adding resources, etc. For each risk that is to be mitigated or that is accepted, a course of action will be outlined such that the risk does not materialize or the impact of the risk is minimized.

### **3.4 Risk monitoring and controlling**

The level of risk on a project will be tracked, monitored, and reported throughout the project lifecycle. A list of all risks will be maintained by the project coordinator and will be reported as a component of the project status reporting process. All project change requests will be analyzed for their possible impact on the project risks. The project steering committee will be notified of important changes to risk status.

## **4 Assessing potential risks**

The identified risks can be assessed quantitatively using a two-dimensional matrix based on the severity and likelihood of the event. Potential risks identified for the 5GEARING project are presented in Table 1. The risk evaluation matrix suggests

Table 1: Risks and risk avoidance

No.	Risk	Mitigation strategy	Severity	Likelihood	Risk level
1	Delivery of selected devices might take longer than planned	Planning and acquisition will be done at a very early stage of the project. Multiple distributors will be contacted for timely delivery.	6	60%	Moderate
2	Suitable 5G use equipments (UEs) to connect to robots and industrial machines is not available	Available off-the-shelf equipment with other form factors will be used for demonstration. More and more manufacturing companies are producing standardized modules that can be carefully selected.	5	50%	Moderate
3	The currently available 5G campus network is limited to fulfilling communication requirements of industrial use cases	Start with less stringent requirements and follow the development process to enhance the technology.	4	70%	Moderate
4	Delay in implementation and demonstration of the framework	The work plan is designed in a way to allow sufficient time for each step for setting the validation framework. The partners setting up the validation framework have the key expertise. Moreover, the early design of test cases will help in the validation process.	5	40%	Low
5	Covid-19 related delays and complications may prevent effective collaboration	Plan tasks and activities for home office scenarios. Moreover, tasks will be planned for independent work but with effective communication among the consortia members.	5	50%	Moderate
6	Find / change of project staff	There is a satisfactory level of skills and expertise to warrant the resumption of the activity in case a replacement of a project staff member is needed. However, a quick replacement of the member will be sought.	4	40%	Low



how critical the risks are and how they can be treated to minimize their effects. The corresponding mitigation strategy can be used and followed.

## **5 Conclusions**

Identification, evaluations, and development of a mitigation strategy for risks are essential for the successful execution of a project. This document serves as a risk management plan for the 5GEARING project and defines the steps needed to analyze potential risks to the project. The identified risks will be evaluated according to the defined criteria while a corresponding mitigation strategy will be devised. All changes to the project will be analyzed for their possible impacts. The project steering committee will decide on all changes needed to the project plan to mitigate or minimize the impact of risks.

## **Acronyms**

**RMP** risk management plan. 3

**UE** use equipment. 6