CO CONNECT

CCAM TRUST & RESILIENCE

D1.2
Project Quality Plan

Project number	101069688
Project acronym	CONNECT
Project title	Continuous and Efficient Cooperative Trust Management for Resilient CCAM
Start date of the project	1st September 2022
Duration	36 months
Call	HORIZON-CL5-2021-D6-01-04

Deliverable type	Report
Deliverable reference number	D6-01-04/ D1.2/ 1.0
Work package contributing to the deliverable	WP1
Due date	31st August 2023 – M12
Actual submission date	<Completed in by the Coordinator>

Responsible organisation	TEC
Editor	Barbara Gaggl
Dissemination level	PU
Revision	1.0

Abstract	This Project Quality Plan constitutes a set of project templates and explanations on the project management process, review process, quality checks and meeting organisation, which are communicated to all partners. It further includes the risk assessment plan and shows how potential risks are assessed and mitigated.
Keywords	Quality assurance, project management, review process, meeting organisation, risk assessment

Editor

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Executive Summary

This Project Quality Plan shows how quality aspects are taken into account in a variety of processes and activities within the CONNECT project. The interrelated quality processes – planning, assurance and control – have impact on the project work from its start to its end.

Quality Planning refers to quality policies like meetings, deliverable or publication policies, the definition of responsibilities as well as the creation of a corporate visual identity including a project logo, project templates etc. In order to communicate adequately within the project as well as to project external persons, several tools, such as project policies for meetings, deliverables and the publication of scientific papers, are established and explained in this document.

Quality Assurance involves the creation of Interim Management Reports, the establishment of clear responsibilities and regular, clearly guided conference calls. A well-defined internal review process further supports the Quality Assurance of deliverables.

Quality Control focuses on feedback through internal review processes as well as external advices (Advisory Board). It further monitors how feedback is implemented and assures the project outcomes through proactive risk management.

The Project Quality Plan is effective throughout the lifetime of the project, but is open to revision if necessary. Responsibilities for quality planning, assurance and control are shared between all partners. This allows various views on quality issues in order to reach the optimal outcome.

The CONNECT risk assessment plan describes how the project contemplates to manage risks, intends to predict risks, estimates impact and defines mitigation measures. It outlines the management components, the approach and tools used. In order to be aware of the central project activities in relation to the project timeline, the critical path of CONNECT has been defined. Within the project, the iterative and interrelated steps of risk identification, risk analysis and monitoring as well as risk handling are accompanied by easy-to-use tools, clear responsibilities and efficient communication channels towards effective risk management. As the CONNECT consortium is aware of the swift changing environment it is contributing to, risks are regularly monitored, mitigation plans updated and actions taken, if necessary.

The section on the risk assessment outlines the risk assessment procedure established within CONNECT based on scientific theoretical background. The detailed risk assessment on work package level is performed on a regular basis.

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Chapter 1 Introduction

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In order to achieve the planned project objectives, the CONNECT team has established an effective risk management strategy that allows dealing with challenges throughout the project. Chapter 4 presents the risk assessment plan and the critical path of the project. The risk management procedure including risk identification, risk analysis & monitoring and risk handling is described in detail and the risk assessment performed by the consortium within the first 12 months is presented.

Chapter 2 Project Structure

This chapter introduces the main project characteristics in terms of participants, WPs and responsibilities, in order to allow new members to get more easily on board and find important information at a glance.

2.1 Project Bodies

CONNECT is a research project with 7 Work Packages (WPs) and 17 partners, coordinated by Klaus Michael Koch (Technikon). Together with the Technology Leader Thanassis Giannetsos (UBITECH) and the Scientific Leader Frank Karg (UULM) he forms the Project Management Team, which is operationally responsible for the project and acts as the interface to the European Commission.

1	TEC	Technikon Forschungs- und Planungsgesellschaft mbH (AT)
2	UBITECH	Ubitech Ltd (EL)
3	HUAWEI	Huawei Technologies (DE)
4	ICCS	Institute of Communication and Computer Systems, I-SENSE Research Group (EL)
5	UULM	Universität Ulm (DE)
6	RHT	Red Hat Research (IL)
7	TRIALOG	Trialog (FR)
8	DENSO	DENSO AUTOMOTIVE Deutschland GmbH (DE)
9	INTEL	Intel Deutschland GmbH (DE)
10	SUITE 5	Suite5 Data Intelligence Solutions Ltd (CY)
11	UNISYSTEMS	Unisystems (EL)
12	UTWENTE	University of Twente (NL)
13	FSCOM	FSCOM (FR)
14	CRF	Centro Ricerche Fiat SCPA (IT)
15	POLITO	Politecnico di Torino (IT)
16	IRTSX	INSTITUT DE RECHERCHE TECHNOLOGIQUE SYSTEMX (FR)
17	SURREY	University of Surrey (UK)

The interaction, responsibilities and decision-making power is clearly divided between the established project bodies as shown in Figure 1. The governing culture of the CONNECT project is based on democracy, co-determination and clear leadership.
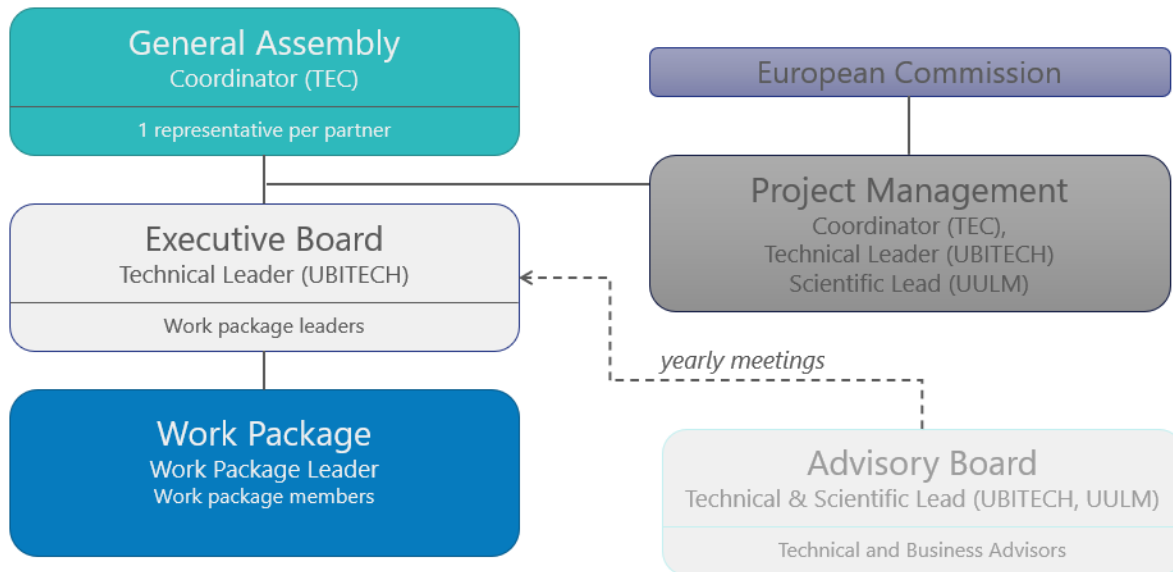
Figure 1: CONNECT Governing Structure

The defined CONNECT project bodies, the decision-making processes as well as the responsibilities are bindingly described in the Consortium Agreement and in the Grant Agreement.

The **General Assembly** (GA) is the assembly of all partners. It was established within the proposal and therefore included in the Consortium Agreement.

The following representatives have been selected to represent their organization within the **CONNECT General Assembly.**

- **TEC**   Barbara Gaggl   Deputy: Michael Käfinger
- **UBITECH**   Thanassis Giannetsos   Deputy: Thomas Krousarlis
- **HUAWEI**   Ioannis Krontiris   Deputy: Theo Dimitrakos
- **ICCS**   Panagiotis Pantazopoulos Deputy: Dinos Katsaros
- **UULM**   Frank Kargl   Deputy: Artur Hermann
- **RHT**   Carlos Camacho   Deputy: Luiza Nacshon
- **TRIALOG**   Antonio Kung   Deputy: Guillaume Mockly
- **DENSO**   Alexander Kiening   Deputy: Tim Leinmüller
- **INTEL**   Matthias Schunter   Deputy: Valerio Frascolla
- **SUITE5**   Sotiris Koussouris   Deputy: Konstantinos Latanis
- **UNISYSTEMS**   Platon Velonias
- **UTWENTE**   Adam Henschke
- **FSCOM**   Peter Schmitting
- **CRF**   Marco Zanzola
- **POLITO**   Claudio Casetti
- **IRTSY**   Francesca Bassi   Deputy: Anouk Dubois
- **SURREY**   Catalin Dragan   Deputy: Liqun Chen

The **Executive Board** (EB) is the assembly of all work package leaders. It is chaired by the Technology Leader Thanassis Giannetsos from UBITECH.

According to the Consortium Agreement: the Executive Board *is the supervisory Consortium Body for the implementation of the Action Board which shall report to and be accountable to the General Assembly.*

WP/Partner	Representative	Deputy
WP1: TEC	Michael Käfinger	Barbara Gaggl
WP2: UBITECH	Thanassis Giannetsos	Dimitris Papamartzivanos
WP3: UULM	Frank Kargl	Artur Hermann
WP4: INTEL	Matthias Schunter	Dmitrii Kuvaiskii
WP5: ICCS	Panagiotis Pantazopoulos	Pavlos Basaras
WP6: UNISYSTEMS	Ilias Aliferis	Evangelia Adikimenaki
WP7: TRAILOG	Antonio Kung	Estibaliz Arzoz

2.2   Steps towards project participation

1) Initial registration

New participants in the project need to contact the coordinator in order to receive access to the CONNECT GitLab Project Repository.

2) Contacts and mailing lists

All contact details are added to the CONNECT contact list and the new participant will be subscribed to relevant mailing lists, as these are essential tools for project internal communication.

So far, the following CONNECT mailing lists are activated and in use:

Mailing List Name	Members
Technical mailing list	For all technical correspondence & EB member discussions
GA mailing list	General Assembly members and deputies
Financial mailing list	Personnel responsible for financial questions and tasks (financial reporting, reporting of PMs, payments etc.)
Legal mailing list	Personnel responsible for legal questions and tasks
Publication mailing list	Partners will be informed about Publication & Notices at least 45 days before publication according to Article 16 GA (Annex 5)
All mailing list	All personnel actively involved in the project
WP2 mailing list	Members working on WP2
WP3 mailing list	Members working on WP3
WP4 mailing list	Members working on WP4
WP5 mailing list	Members working on WP5
WP6 mailing list	Members working on WP6
WP7 mailing list	Members working on WP7

Table 1: CONNECT Mailing Lists

3) Project Handbook

New participants will receive this document, as short introduction to get familiar with:

- o the *CONNECT infrastructure* (GitLab, public website, calendar, Mattermost chat tool, social media)
- o the *project structure* (partners, hierarchy of bodies, most important documents at a glance) – see section 2.1
- o the *project procedures* (meetings, deliverables, publications)

The project handbook is designed in a way to be easily consulted and to provide quick answers to project newcomers. It is available as a PDF file on GitLab and should be a living document. This implies that it will be updated regularly to record and list the lessons learned in order to improve the quality of the project. All partners will be involved in the revision process and informed about any updates. In general, TECHNIKON will be the main responsible partner for updating the project handbook. Updates will be performed whenever necessary, e.g. if there are changes to the mailing lists or if the project structure or the General Assembly / Executive Board composition changes. In any case, partners are always invited to propose updates if required.

4) Introduction and start

Once familiar with the project policies and the infrastructure, newcomers will find the most relevant documents like the Description of Action (DoA), Grant Agreement (GA) and Consortium Agreement (CA) on our working directory on GitLab.

Chapter 3   Quality management strategy

Quality is the degree to which the project results fulfil the project requirements. For this purpose, a Quality Management Strategy has been defined within the CONNECT project through three key processes, namely Quality Planning, Quality Assurance and Quality Control. These three processes are interconnected and interact in order to guarantee efficient and high-quality work.

3.1 Quality planning

Quality Planning determines quality policies and procedures relevant to the project for both project deliverables and project processes, defines who is responsible for what, and documents compliance with defined guidelines.

3.1.1 Visual identity

The creation of a corporate visual identity plays a significant role in the way the CONNECT project presents itself to both internal and external stakeholders. A corporate visual identity expresses the values and ambitions of the project and its characteristics and makes the project visible and recognisable. It is of vital importance that people know that the project exists, remember its name as well as the names of its collaborators. In the following, we briefly list the actions that were taken in order to create a visual identity of the project. A more detailed presentation of the materials and activities can be found in D7.1 "Plan for Dissemination and Exploitation incl. Communication".

Logo: For the improvement of its visibility, the CONNECT project has adopted a project logo. The logo is used on all internal templates as well as on external dissemination tools.

Project website: For greater visibility of the project, a website was launched in the first month. The CONNECT project website is available at the following link: https://horizon-connect.eu/

Leaflet: An informative and graphically appealing A5 leaflet, highlighting the CONNECT vision, main goals, key technological aspects as well as background information was created. It can be used for distribution at conferences or certain other events in order to provide further visibility to the CONNECT project. An electronic version of the leaflet is available on the CONNECT website.

Videos and Interviews: The CONNECT consortium will publish videos on a regular basis. They will be produced and edited at TECHNIKON's media department. Interviews will be recorded at the project meetings or remotely The links to the videos will also be published on the different social media channels. Every year video material with durations of up to 2 minutes and animated 2D/3D content will be produced by TECHNIKON and published on Vimeo. These videos will then also be shared on the website and on the CONNECT Social Media accounts.

Templates: Presenting the CONNECT project with a clear visual identity is a goal of all project partners. Therefore, templates that bear the hallmark of the CONNECT design were created and made available to all project partners. All templates include the CONNECT logo, the CONNECT colours, a disclaimer and acknowledgement to the EC.

Social Media: In order to reach our main target groups, Twitter and LinkedIn are used to raise awareness of project related news, results and publications and to foster cooperation activities.

3.1.2 Project policies

Internal project guidelines, or so-called project policies, are established by the coordinator to guarantee efficient internal and external processes concerning meetings, deliverables and publications.

3.1.3 Meeting procedures

Since the outbreak of the Covid-19 pandemic in 2020, more physical meeting are taking place again within the CONNECT consortium, supported by a number of regular virtual meetings.

The consortium has decided that in general, the hosting partner of a meeting pays for conference facilities, catering etc., while each partner pays for travel, accommodation and other provisions. Usually, the host invites for lunch and coffee breaks during the meeting. If possible, the hosting partner invites the partners to a common dinner. Meeting locations shall change regularly in order to achieve a fair distribution of costs. To keep costs down, we prefer to meet at company facilities that can often be used for free, rather than renting external facilities.

If that is not possible, the host can also arrange a conference room in a hotel or similar structure. Then the partners pay separately their conference fees (room fee including coffee and lunch breaks).

Meeting Room(s):

- On the first day we need one big room for approx. 30-35 people (if every partner shows up with 1-2 persons; a participant list will be created to provide further details).
- For the second day parallel sessions might be suitable. To plan such sessions, one or two rooms (for approx. 12-15 persons each) are required. (It will be decided in advanced how many breakout sessions are necessary for the dedicated meeting.)
- Are there any costs for the conference room/day/person? (e.g., coffee break or lunch)?
- Are there any other expenses?

Infrastructure/Equipment:

- Free WLAN at meeting/workshop

- Internet connection

- Projector/Beamer in each room

- Flip charts and pens

- Power outlets for all participants

- Optional: Microphone/Speaker for large rooms

- Possibility for hybrid meeting

The host of a CONNECT internal meeting has to prepare a 1-2 pager with logistic information approx. one month before the meeting. This 1-2 pager is checked by the Project Management Team and discussed within the technical progress conf calls to make sure that the meeting allocation fits the planned meeting and the number of participants.

The number of participants is collected through a participant list on GitLab, which needs to be completed by all partners at least one and a half months before the meeting. The Coordinator together with the meeting host has to prepare an agenda approx. one month before the meeting.

All these specific requirements are already taken into account when choosing the host of the next meeting. If a partner volunteers to host a meeting but is not able to fulfil the meeting process described in section 3.1.3, another partner will be chosen for hosting it.

3.1.4 Deliverables

Deliverables must be stored in the "Deliverables" folder of the corresponding Work Package on GitLab. The following file naming is used for all deliverables:

- CONNECT-*[Dx.x]-[Level of Dissemination]-[Due-Month]*.

Nature of Deliverables

- "R" (Document, report)

- "DEM" (Demonstrator, pilot, prototype)
  Deliverables marked with nature "DEM" will be accompanied by a small written report outlining its structure and purpose in order to justify the achievement of the deliverable.
- "DMP" (Data management plan)
- "OTHER" (Other)
  Deliverables marked with nature "OTHER" will be accompanied by a small written report outlining its structure and purpose in order to justify the achievement of the deliverable.

As deliverables are the most important outcome of the project, excellent quality needs to be ensured. Therefore, an internal review process was defined, which is described in detail in section 3.3.1.

3.1.5 Publishing scientific papers and research data

Prior notice of any planned publication shall be given to the other parties concerned **at least 30 days** before the publication in accordance with the Consortium Agreement. Any objection to the planned publication shall be made in accordance with the CA in writing to the coordinator and to any party concerned within 20 days after receipt of the notice. If no objection is made within the time limit stated, the publication is permitted. (CA 8.4)

The project partners may agree in writing on different time limits to those set above, which may include a deadline for determining the appropriate steps to be taken.

Furthermore, the publication, or the link to it, will be made accessible on the project website**.** Partners shall inform the coordinator as soon as a link or document in pdf format is available. The Commission and any interested party will then be informed about the scientific publication via our website and social media channels.

In order to comply with GA Annex 5 (Article 17) the provision of open access to scientific publications, CONNECT publications will be uploaded on the OpenAIRE data repository Zenodo. Alternatively, also other repositories can be used (e.g., arXiv, set-ups from beneficiaries …).

All publications or any other dissemination relating to foreground generated with financial support from the European Commission shall include the following acknowledgment (GA 17.2 and 17.3):

"The CONNECT project is funded by the European Union under grant agreement no. 101069688. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Horizon Europe. Neither the European Union nor the granting authority can be held responsible for them."

Authorship "Rules of Thumb"

A person should be author and the person may veto a publication if

- the person has contributed significant portions of the text, and/or

- the person has contributed at least one significant idea, and/or

- the paper describes an implementation that has been performed by the person.

All other contributors/influencers should be mentioned broadly in the acknowledgements.

As prior notice needs to be given 30 days before the publication, all partners have sufficient time to review the planned publication. This additional review process contributes to high quality publications.

According to GA Annex 5 Article 7 the parties must "ensure open access to peer-reviewed scientific publications relating to their results" and data is managed according to the data management plan (D1.1 Data Management Plan").

To make sure such data produced in the CONNECT project is made openly accessible, the Coordinator will send a data specification sheet to the partner owning the data, which needs to be filled for each identified dataset. This must also be done for data not directly attributable to a scientific publication. Depending on the sensitivity of the information - either public or confidential – the data will either be published (Zenodo) or a justification to the confidentiality reason will be requested.

3.2 Quality assurance

Quality assurance focuses on the creation and monitoring of processes based on set requirements. Quality assurance supports the monitoring of project processes, which need to be performed effectively to reach the targeted outcomes. This involves the establishment of Interim Management Reports, clear responsibilities and regular, clearly guided conference calls and face-to-face meetings.

3.2.1 Interim Management Reports (IMR)

The basic idea of internal "Interim Management Reports" is to implement a tool, which requires each partner to provide information regarding their past, ongoing and planned work, as well as information on the spent resources in a specific period of time. The IMR is a cumulative report created on a quarterly basis, which all partners contribute to. It is an efficient tool to provide the Project Management Team a good understanding of the status and progress of the work and to detect any possible delays or deviations well in advance. Furthermore, the IMR serves as the basis for the periodic reports to the EC.

The structure and the target of each section in the IMR are as follows:

Chapter 1 "Explanation of the work carried out by the beneficiaries and overview of the progress (including deviations)" asks for partner information regarding the work performed within the respective quarter. This helps the Project Management Team to monitor partner activities and the progress made within the last quarter. It further asks the WP leader explicitly for the main achievements and exploitable results per WP, in order to have a clear view on the results and how they will impact the ongoing work. For the Coordinator it was also of high importance to add a section, which gives the partners the opportunity to describe deviations concerning the work plan described in the DoA. In this subsection of each WP partners describe problems they had/have to cope with and that may be related to problems with larger impact.

Chapter 2 of the IMR reports on the status of the deliverables and milestones which were due until the issue of the report, as well as on those due in the upcoming quarter.

Chapter 3 is dedicated to dissemination, communication, exploitation and standardisation activities carried out in the respective quarter, while Chapter 4 summarizes the publications (and associated research data) that were submitted until the issue of the IMR or are planned to be submitted in the

next quarter. Every six months, a separate chapter about risk assessment is added to the IMR. The process of risk management is described in section 3.3.2.

Finally, the IMR contains a chapter about the use of resources of each partner per WP and task. Chapter 6 gives an overview of the total planned person months in comparison to the actual spent person months. A subsection of this chapter allows partners to shortly describe and justify deviations regarding their planned use of resources and person months.

The coordinator prepares a cumulative report with the inputs from all partners every quarter, which is checked by the Technology Leader. If shortcomings or inconsistencies are identified, they will be discussed in the next technical progress conf call and fixed latest within the next IMR.

WP1 – Project, Risk and Ethics Management [M01-M36]
Overview on Tasks in WP1:
T1.1: Administrative Coordination [M01-M36]
T1.2: Technical Coordination and Data Management [M01-M36]
T1.3: Risk and Innovation Management [M01-M36]
T1.4: Data Protection, Legal and Ethical Compliance [M01-M36]
WP 1 Objectives This WP performs the project coordination and covers: (i)   Decision Making and Conflict Resolution (ii) Administrative and Financial Management (iii) Scientific and Technological Management (iv) Quality, Innovation & Risk Management (v) Ethical, Legal & Social analysis regarding the use of research data
Explanation of work carried out in WP1 during the reporting period giving details by each beneficiary involved:
Partner 1 – TEC: <Please complete>
Partner 2 – UBITECH: <Please complete>
Partner 3 – HUAWEI: <Please complete>
…..
Partner 17 – SURREY: <Please complete>
Explain the reasons for deviations from the DoA, the consequences and the proposed corrective actions. *Include explanations for tasks not fully implemented, critical objectives not fully achieved and/or not being on schedule. Explain also the impact on other WP/tasks on the available resources and the planning. If yes, please provide the following information:*
<Beneficiary short name> Reason: <Please complete if applicable> Consequences: <Please complete if applicable> Corrective actions: <Please complete if applicable>
Main Achievements and Results in WP1
✓   <Please complete>

Figure 2: Extract IMR I, Chapter 2

	Planned vs spent PMs per WP							
WP	Total planned (M01-M42)	Planned P1 (M01-M18)	Spent P1 (M01-M18)	Planned P2 (M19-M36)	Spent P2 (M19-M36)	Total Spent P1+P2	Remaining	Remaining %
WP1	49.00	0.00	0.00	0.00	0.00	0.00	49.00	100.0%
WP2	103.00	0.00	0.00	0.00	0.00	0.00	103.00	100.0%
WP3	100.00	0.00	0.00	0.00	0.00	0.00	100.00	100.0%
WP4	88.00	0.00	0.00	0.00	0.00	0.00	88.00	100.0%
WP5	89.00	0.00	0.00	0.00	0.00	0.00	89.00	100.0%
WP6	142.00	0.00	0.00	0.00	0.00	0.00	142.00	100.0%
WP7	88.00	0.00	0.00	0.00	0.00	0.00	88.00	100.0%
Total	659.00	0.00	0.00	0.00	0.00	0.00	659.00	100.0%

Figure 3: Extract IMR II, Chapter 3

3.2.2 Responsibilities and internal review

Transparency of roles and responsibilities has a big impact on the project success. Uncertainty can dramatically affect individual, organisational as well as the consortium's overall performance. Therefore, as already mentioned in 2.1, responsible persons for each organisation and per WP were defined. In a further step, responsibilities for deliverables are defined. The table below lists all deliverables and milestones due within the first 12 months of the project. While the leader of each deliverable has already been set in the DoA, the editor responsible for requesting and guiding partner inputs towards a punctual and high-quality submission, were chosen at the project start. In line with the internal review process (described in section 3.3.1) two internal reviewers for each deliverable are defined and clear deadlines for the first draft, the review feedback, as well as for the final version were established.

	Deliverables and Milestone Status Overview													
	The EDITOR of this overview is the CONNECT Coordinator, if you want to perform any updates please send an email request to coordination@horizon-connect.eu													
ACR	Nature	Type	Deliverables and Milestones	WHO	Editor name	WP	Del. Mont	Review Start	Deadline	upcoming DEADLINES	Name of Reviewer 1	Name of Reviewer 2	Delivered to EC - insert date	Finished	Comments / Requests, etc.	Accepted by EC
MS1			Successful project start	TEC	Nicole Mitsche	All	M01	09/09/2022	30/09/2022	Submitted			30/09/2022			
D1.1	SEN	DMP	Data Management Plan	TEC	Nicole Mitsche	WP1	M06	07/02/2023	28/02/2023	Submitted	Thanassis (UBITECH)	Yannis (HUAWEI)	28/02/2023	Yes		
D7.1	PU	R	Plan for Dissemination and Exploitation incl. Communication	TEC	Nicole Mitsche	WP7	M06	07/02/2023	28/02/2023	Submitted	Thanassis (UBITECH)	Kostas (SUITE 5)	28/02/2023	Yes		
D3.1	PU	R	Architectural Specification of CONNECT Trust Assessment Framework, Operation and Interaction	UULM		WP3	M10	09/06/2023	30/06/2023	Submitted	Thanassis (UBITECH)	Claudio (POLITO)	10/07/2023	Yes		
D1.2	PU	R	Project Quality Plan	TEC		WP1	M12	10/08/2023	31/08/2023	Deadline this month	Frank (UULM)	Yannis (HUAWEI)				
D2.1	PU	R	Operational Landscape, Requirements and Reference Architecture - Initial Version	UBITECH		WP2	M12	10/08/2023	31/08/2023	Deadline this month	Alex (DENSO), Yannis (HUAWEI) Frank (UULM) Chris (SURREY)	Due to length 4 reviewers				
D5.1	PU	R	Distributed Processing and CCAM Trust Functions Offloading & Data Space Modelling	ICCS		WP5	M12	10/08/2023	31/08/2023	Deadline this month	Matthias (INTEL)	Thanassis (UBITECH)				
MS2			Availability of CONNECT conceptual models designing the integral trust assessment, operational assurance and authentication & authorization services	UULM		WP3, WP5, WP4	M12	10/08/2023	31/08/2023							
MS3			Reference Architecture and its operational landscape	UBITECH		WP2	M12	10/08/2023	31/08/2023							
D4.1	PU	R	Conceptual architecture of CustomizableTEE and Attestation Models Specifications	INTEL		WP4	M15	09/11/2023	30/11/2023							
MS4			Trust Assessment Architecture	INTEL		WP3, WP4	M15	09/11/2023	30/11/2023							

Table 2: Deliverables and Milestones Overview

3.2.3 Conference calls and meetings

Communication is one of the most essential foundations of a successful project collaboration. Therefore, the CONNECT consortium established regular conf calls and video-calls (e.g. monthly technical progress conf calls, requesting WP status reports and several WP-internal/cross-WP meetings and conf calls). The Coordinator provides their conf call system. Virtual meetings are planned in parallel to physical meetings, which are needed because of the complexity of this project.

To ensure the project success it is necessary to implement an efficient meeting structure. At the beginning of the CONNECT project, the Kick-off meeting took place in Athens on 22nd and 23rd of

September 2022. The different expectations and schedules were discussed in order to make a definitive plan about the further work plan and required actions.

The Coordinator plans to organize at least two technical meetings per year (either f2f or virtual), combined with General Assembly meetings at the end of each project period or at least once per year (planned venue: online or at a partner's premises). Meetings with the CONNECT Advisory Board will assure that the consortium takes the right decisions regarding market relevance, impact on policy-making and other factors. In addition, there will be some WP-internal / cross-WP meetings on request.

At the end of each project period there will be a review preparation meeting shortly before the official review meeting takes place (planned venue: online or EC premises in Brussels or - if necessary – at a partner's premises).

3.3 Quality control

The scope of quality control is the management of feedback and deviations in the project. Quality control ensures that feedback, from internal, as well as from external advisors, is taken into account and therefore positively influences the work towards the project objectives. Risk management is an integral part of quality control as the proactive notice of deviations from the DoA allows the consortium to mitigate the consequences or even transform the latter into opportunities.

3.3.1 Deliverable review process

To ensure the quality of deliverables, an internal review process was defined. The main goal of this process is to gather internal feedback from partners, who did not directly participate as editor or contributor to the deliverable before its submission to the European Commission. The review process is shown and explained below.
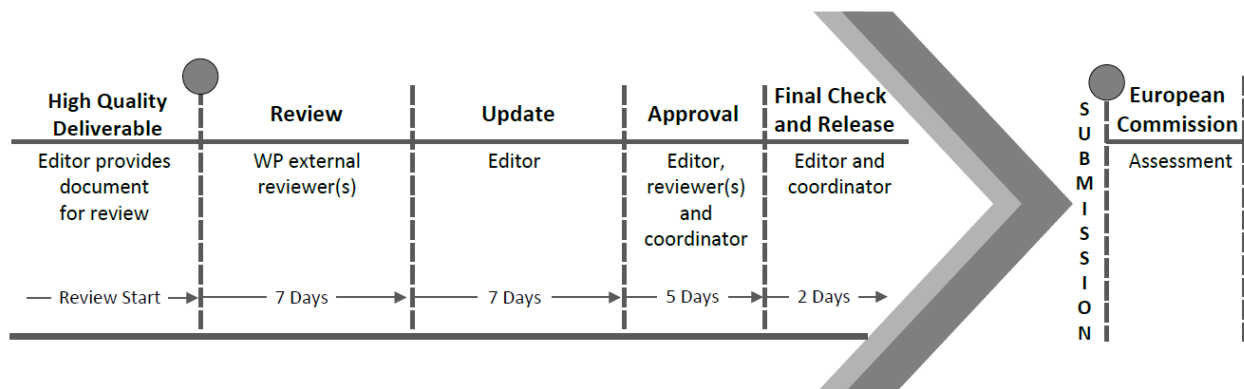

Figure 4: Review and Quality Assurance Process for Deliverables

The editor sends the high-quality deliverable to the reviewers who were not directly involved in the deliverable work. High quality means, that all required input is included within the deliverable, all track changes accepted and a first formatting check performed. The reviewers read the deliverable and compare the content against its objective, as defined in the work plan. The review result is a draft with mark-up as follows:

LaTeX: Typos and small changes are directly performed on the text. Comments are entered into the text using the comments.sty latex package.

Word: The editor protects the draft against changes (always save with "track changes" activated). Typos and small changes are directly entered on the text while using "track changes". Comments are entered into the text as MS Word comments.

The internal reviewer has to fill in an **Internal Review Template**. The internal review form guides the reviewer through specific questions, in order to make sure that the content complies with the quality claims of the EC (e.g., accordance with the DoA, required information, structure, etc.) as well as the project partners. It monitors the structure as well as the compliance with the description in the DoA. This gives feedback to editor of this Deliverable in a clearly structured form and helps the editor to address all comments. Below the internal review form in CONNECT is presented.

The editor is responsible to check the feedback of the reviewers and to update the deliverable accordingly. The final version of the deliverable is then sent to the reviewers and the Project Management Team for final approval. If a deliverable does not fulfil the quality requirements of CONNECT, this process will be repeated until it is at least in line with the DoA. The caused delay has to be explained and justified by the editor, who - together with the Management Team - checks, if the delay affects other deliverables or the project progress in general.

As soon as the reviewers give their okay, the Project Management Team performs a final check and formatting updates, before the coordinator officially submits the deliverable via the participant portal.

If a deliverable is not ready for submission by the official submission deadline, the coordinator will inform the project officer about the delay and mention if this delay has any impact on other deliverables or the project progress in general.

REVIEW FOR

FOR THE INTERNAL REVIEWER

CONNECT Deliverable:

* Type of comments: M = Major comment, m = minor comment, a = advice			
Date of Internal Review:	**Internal Reviewer:**		
	Answer	**Comments**	**Type***
1. Is the deliverable in accordance with			
i. the Description of Action?	Choose an item.		Choose an item.
ii. the international State-of-the-Art?	Choose an item.		Choose an item.
2. Is the quality of the deliverable such			
i. that it can be sent to the EC?	Choose an item.		Choose an item.
ii. that it needs further editing?	Choose an item.		Choose an item.
iii. that the content needs to be improved?	Choose an item.		Choose an item.
3. Does the Deliverable include			
i. a clear structure (e.g. appropriate, understandable presentation of the work performed)	Choose an item.		Choose an item.
ii. a sufficient and meaningful executive summary	Choose an item.		Choose an item.
iii. an appropriate introduction	Choose an item.		Choose an item.
iv. a meaningful summary & conclusion	Choose an item.		Choose an item.

Table 3: Internal Review Form
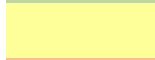
3.3.2 Risk management

To guarantee the achievement of the objectives of the CONNECT project, it is essential to identify and understand those risks that could have a negative impact on the project.

A continuous risk management process is based on the early identification of, and the fast reaction to, events that can negatively affect the outcome of the project. For this purpose, the regular meetings of the project bodies serve as the main forum for risk identification. The identified risks are analysed and rated, based on their impact and probability of occurrence by answering the following question: "How big is the risk and what is its impact on CONNECT?" Knowing how a risk impacts

the project is important, as several risks of the same type can be an indication of a problem of larger impact.

The risks defined in the DoA are divided into low/medium/high risk levels.

	low	Low probability of occurrence and low impact
	medium	Low/high probability of occurrence and High/low impact
	high	High probability of occurrence and high impact

The risks will be monitored on a regular basis and an updated risk table will be provided within the Periodic Reports. A detailed classification and evaluation is provided in Chapter 4 "Risk Assessment Plan". The Risk Assessment Plan highlights how potential risks are assessed and mitigated in order to avoid any negative influence on the project objectives.

In addition to the above-mentioned tools and procedures, the project partners' and the Coordinator's profound experience with H2020 projects implicates a high level of competence, expert knowledge, skills and qualifications, which further increases the quality of the project work. Besides these hard skills, also soft skills, such as motivation, team spirit and interpersonal interaction contribute to high-quality project performance.

3.3.3 Advisory Board

The consortium is supported and advised by an external Advisory Board (AB), consisting of selected organisations not directly involved in the project as partners. Their valuable feedback to the technical process of the project brings many benefits for the CONNECT project. The AB members provide an external unprejudiced view advising on strategic directions of the project in terms of detailed technical goals and impact, comment on economic feasibility and achieved or missed targets. To achieve high quality results within the CONNECT project, a strong cooperation with the AB members will actively be pursued and facilitated by frequent interaction in the form of face-to-face meetings, conference calls and feedback rounds.

The international expert team leverages a diverse array of backgrounds among its members, encompassing experts from academia, research, the automotive industry, think tanks, and policy-making spheres. Their collective expertise covers a broad spectrum of subjects including automotive and IoT security, automotive security strategy, security standards, misbehavior detection & V2X communication, and trust assessment. Their role is to guide, support and provide feedback to the CONNECT consortium with advice and expertise throughout the project duration.

Through the integration of an Advisory Board, interim feedback of enormous importance regarding the overall orientation of the project outcome is expected. This supports the path towards objectives and controls the quality of the project work as well as the quality of expected outcomes.

The Project Management Team is the chair of the AB and is in charge of preparing the implementation of the AB's suggestions.

If confidential information will be provided to the AB members, the Coordinator will ensure that a Non-Disclosure Agreement (NDA) is executed between the consortium and each AB member.

Chapter 4 Risk Assessment Plan

4.1 Introduction

"Avoiding rocks on the road to success" (ISO 31000, 2023) following this guiding principle, the CONNECT consortium has established an effective project risk management strategy to avoid tripping over rocks on the road to successfully reach the planned project outcomes or go even beyond.

The aim of the CONNECT project (Continuous and Efficient Cooperative Trust Management for Resilient CCAM) is to address the convergence of security and safety in CCAM by assessing dynamic trust relationships and defining a trust model and trust reasoning framework based on which involved entities can establish trust for cooperatively executing safety-critical functions. The CONNECT Trust Management framework is the basis that models and captures the trust relationships of the next generation CCAM systems. CONNECT's new safety paradigm is a key element in bringing autonomous driving to a completely new level of trustworthiness and is expected to lead to long-term consumer acceptance as a result.

The CONNECT framework is highly interlinked and as such required strong and continuous cooperation and up to date flow of information with the partners throughout the project. Developing and dealing with such an ambitious and highly innovative project, only *"innovation, fused with an agile, sophisticated approach to risk management, can create a powerful, value-driving partnership".* (ISO 31000, 2023)

According to the ISO 31000 standard on risk management, a **risk** can be defined as an "*effect of uncertainty*" towards parts of objectives. An effect is described as a positive or negative deviation from the expected work-plan. Every step towards the project objectives has an element of risk that needs to be managed. In the context of risk management, **uncertainty** exists whenever the knowledge or understanding of an event, consequence, or likelihood is inadequate or incomplete. **Risk management** describes a coordinated set of activities and methods, which supports the control of risks that may affect the project's ability to achieve part of its objectives. The project risk management process is meant to form part of the project management routine at all stages of the project lifecycle. (ISO 31000, 2023)

In order to raise awareness for the central project activities and as a starting point for risk management, a critical path has been defined, which is described. Failing to follow a structured project risk management process for projects in a self-disciplined manner would quickly lead to project failure (ISO 31000, 2023). Therefore, within CONNECT a clear structured process of risk identification, risk monitoring & analysis and risk handling has been established (see Chapter 4.3). This process already started with the risk identification during the proposal preparation phase, continued in all process steps within the first year of the project and will accompany CONNECT throughout the project's lifetime. In order to settle this process as a vital one, communication as well as easy risk assessment tools turned out to be critical factors. Chapter 4.4 displays the practical risk assessment of the project including an evaluation of probability and severity as well as mitigation plans for defined risks. Concluding a summary is provided for the way CONNECT is dealing with risk management and how it will be continued.

4.2 Critical path of the project

The critical path of CONNECT has been defined in order to be aware of the central project activities. The critical path determines the targeted time to complete the project and the critical activities, which might threaten the project objectives. The items of the critical path are mostly reflected by project milestones, presenting central and critical achievements during the project lifetime. The project is currently in M12.
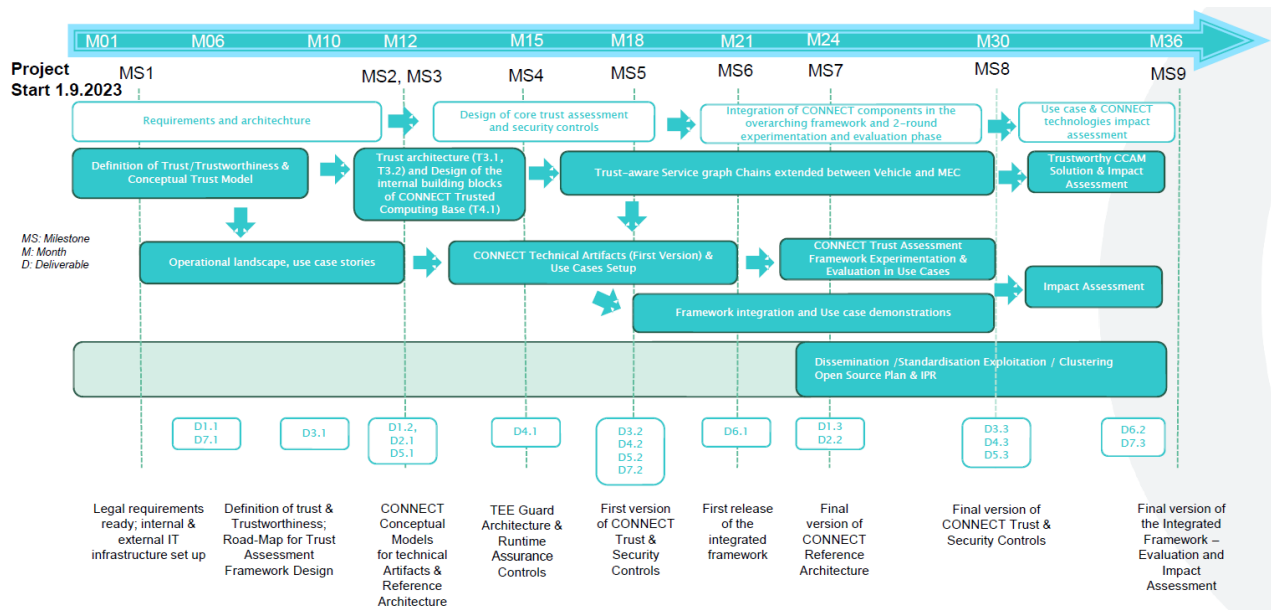
Figure 5: CONNECT Critical Path

The critical path of CONNECT was defined to be aware of the central project activities. It displays the targeted timeline of activities fundamental to the project and which might threaten the project objectives if not completed in time. While the nine project milestones are shown at the top, the boxes below reflect the project activities that lead to the achievement of these milestones. The deliverables are added at the bottom as means of verification of the milestones.

Milestone 1 was achieved in M01 of the project after a successful kick-off meeting was held and the project internal infrastructure was set up. All legal requirements were ready at that time as well.

Milestones 2 and 3 represented the first technical milestones, which will be achieved in M12 after the finalization of the deliverables D2.1 and D5.1. Deliverable D3.1 has already been submitted in M10. These are related to the "Availability of CONNECT conceptual models designing the integral trust assessment, operational assurance and authentication & authorization services (MS2) and "Reference Architecture and its operational landscape" (MS3).

None of the pre-defined risks had an impact on these activities.

The project is now at M12 and the work on the CONNECT framework is ongoing about to reach MS2 and MS3.

The next critical activity is the related to the Trust Assessment Architecture. The completion of the linked activities are going to represent the achievement of the next milestone (MS4) in M15.

4.3 Risk management procedure

This section focuses on the risk management procedure that systematically applies management policies, processes and practices on project activities.

Within CONNECT, we established a risk management framework including three major strides, which are correlating and interacting continually:

- Risk identification (Section 4.3.1)
- Risk analysis & monitoring (Section 4.3.2)
- Risk handling (Section 4.3.3)

The risk management process needed to be aligned with the project objectives and might be adjusted if required due to changes in the research objectives. The risk management procedure has been established around the routine project work and is accompanying the project through its lifetime. Figure 6 indicates that project stakeholders (JU/EC, related projects, suppliers etc.) and the

project environment (regulations, duties, etc.) form the outermost layer, are influencing causes of risks, which may impact the project collaboration with the project objectives in the centre of attention.
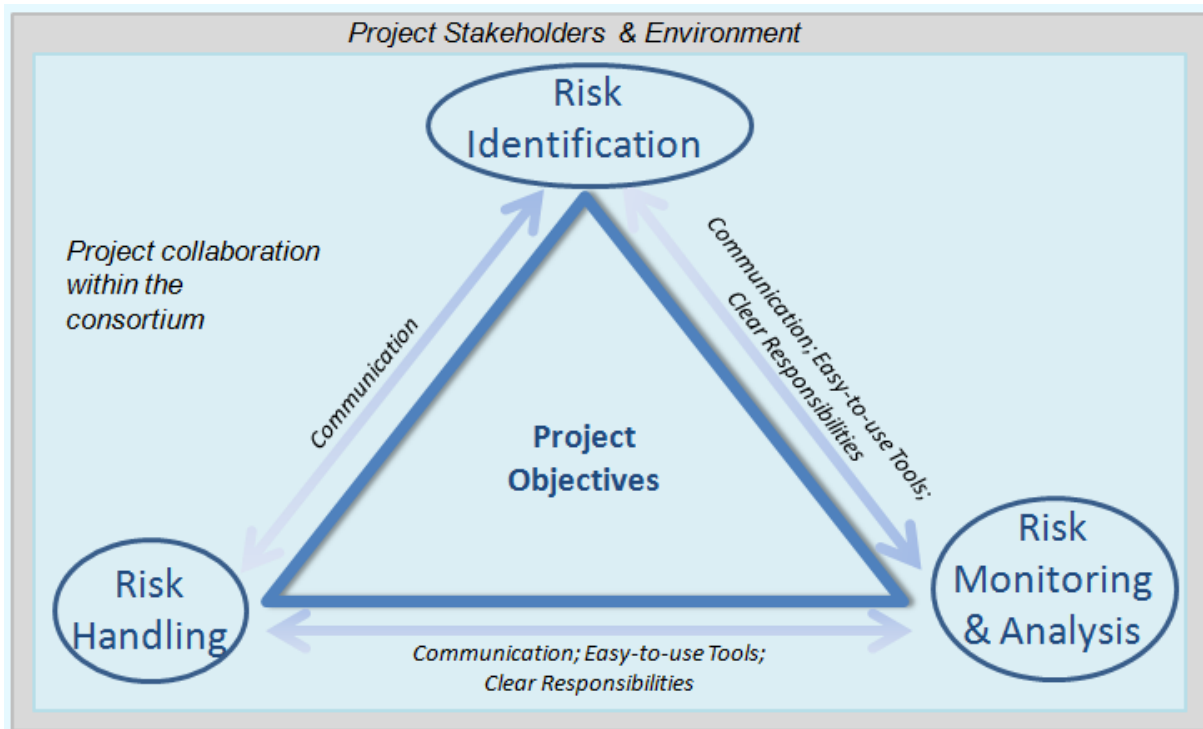

Figure 6: Risk Management Procedure

Taking into consideration all factors external to the project, channels to allow the efficient implementation of the three major steps in the shown risk management procedure, needed to be established. On the one hand, a clear structure for communicating risks including clear responsibilities are required and need to be assured with all partners. On the other hand, it has to be easy for the partners to perform risk management by themselves through easy-to-use tools.

How the above-mentioned tools and steps have been integrated into the project and how they will support to mitigate negative consequences for the project will be described within the following subchapters.

4.3.1 Risk Identification

"Risk identification is a process that is used to recognize, find, and describe the risks that could affect the achievement of objectives." (ISO 31000, 2023)

The target of risk identification is being aware of possible risk sources in addition to the events and circumstances that could affect the achievement of objectives. Further, it includes the identification of possible causes and consequences.

The identification of risks started already during the proposal phase. When developing the idea for an innovative technological advancement, it needs to be formed in a way that creates the most value at an acceptable level of risk. For the identification of risks in such a highly innovative field it is necessary to have experts, who understand on the one hand the technical challenge and its impact and have on the other hand deep insights of the industrial and market needs. The CONNECT consortium unifies all these know-hows in its consortium and is therefore, capable of identifying the risks for the innovative action pursued within CONNECT.

Risk identification has not terminated after the proposal preparation phase, but it is rather a continuous process of attaching awareness for potential risks. To address this awareness best, the consortium defined the WP leaders as risk managers for their WPs. The WP leader is an expert in the field, his or her WP is concentrating on and therefore, the most capable person to identify risks.

On project level, the technical lead (UBITECH) and the scientific lead (UULM) along with the coordinator (TECHNIKON), pay close attention to the identification of potential risks. This is done by means of Interim Management Reports (IMR), regular technical progress conference calls and face-2-face meetings. This structure and distribution of responsibilities allows the continuous identification of new risks and encourages the discussion of potential risks within conference calls, face-to-face meetings and the WPs themselves.

The risk table shown in section 4.4 allows all partners to add new risks at any time. Additionally, the coordinator and administrative support ask partners to pay special consideration on risks on a regular basis within the Interim Management Reports, which are filled in by the project partners on a half-year basis.

4.3.2 Risk Analysis & Monitoring

"Risk <u>analysis</u> is a process that is used to understand the nature, sources, and causes of the risks that have been identified and to estimate the level of risk. It is also used to study impacts and consequences and to examine the controls that currently exist. To <u>monitor</u> means to supervise and to continually check and critically observe - it means to determine the current status." (ISO 31000, 2023)

The process of risk analysis and monitoring is iterative, which means that the risks are evaluated, mitigation measures are re-considered and updated, if necessary, as well as the progress, are monitored on a regular basis. Interim Management Reports (described in Section 3.2.1) serve as main tool for regular analysis and monitoring.

Before setting up the structure and requesting inputs from the project partners, we faced the challenge of making our risks measurable and tangible. While a merely quantitative approach is not applicable due to the high degree of innovation, a pure qualitative approach would be hard to evaluate. Therefore, a mixture of quantitative and qualitative elements has been chosen and is described in the following section.

4.3.2.1 Quantitative and qualitative approaches to risk analysis

"Qualitative Risk Analysis assesses the priority of identified risks using their probability of occurrence, the corresponding impact as well as other factors such as the time frame and risk tolerance. When using quantitative analysis, the risk level can be estimated by using statistical analysis and calculations combining severity and probability." (ISO 31000, 2023)

While qualitative risk analysis is performed for all project risks, quantitative risk analysis has a more limited use within the CONNECT project, based on the type of project risks, and the limited availability of data to conduct a quantitative analysis.

The WP leaders are asked to indicate probability and severity of the stated risks, which have been identified in the previous step.

Probability describes the relative likelihood that a risk will eventuate. It can be defined, determined, measured objectively or subjectively and can be expressed either qualitatively or quantitatively. The probability may be dependent on various factors like the project environment, consortium characteristics, external effects, technological breakthroughs etc. For the evaluation of the Car2TERA project risks the following classifications were defined:

- **Low -** Below *<30%>* probability of occurrence

- **Medium -** Between *<30%>* and *<70%>* probability of occurrence

- **High -** More than *<70%>* probability of occurrence

Severity defines the effects and consequences a project may face in case of risk occurrence. The severity may be influenced by various risk triggers arising from the project environment, consortium characteristics, external effects, technological breakthroughs etc. and may affect the technological and financial performance as well as the schedule of the project.

- **Marginal -** Risk has relatively little impact on the project's technological and financial performance as well as the schedule

- **Critical -** Risk has the potential to impact the project's technological and financial performance as well as the schedule

- **Catastrophic -** Risk has the potential to greatly impact the project's technological and financial performance as well as the schedule

Classifying risks with the indicated scale, allows the appraisal of any action that might be needed. The qualitative analysis further includes the assessment if the risk is (still) relevant (yes/no), if the risk did materialise as well an as update of the risk. This is needed as basis for the decision if any measures need to be taken in a further step. The description of the current risk status also supports the deeper understanding and specification of the risk. At this point quantitative elements step into. The detailed assessment of the risk may include explanations of further effort requests, additional expenses, etc. needed to deal with the risk consequences, which makes it quantitatively measurable.

The practical implementation of the qualitative and quantitative analysis within the CONNECT project can be found in the sections 4.4.1 to 0 for each of the work packages. This regular WP status update on the partners' work allows the assessment and identification of further risks and timely corrective actions if needed.

The effort reported (PMs/partner/WP) in the IMR is collected in a cumulative table over the quarters, which generates diagrams for a swift and easy understanding of over and under spending of resources per partner as well as on WP level. In this way the critical key indicators in terms of efforts are presented at one glance and possible actions can be taken in due course.

Risk assessment includes the evaluation of the already stated risks according to the current status of the project by the WP leaders as well as the additions of unforeseen or potentially upcoming risks. Those inputs were included into the overall risk map and due to the evaluation, it will then be decided if it is necessary to request measures (risk handling – Section 4.3.3) or to iteratively continue with the analysis and monitoring process.

4.3.3 Risk Handling

As outlined in Chapter 3.2 Quality Assurance the risk assessment is evaluated every 6 months alongside the IMR.

The process of risk handling starts once a risk is assessed as likely to occur (medium/high) and has an impact/severity (critical/catastrophic) on the project. At this point, a WP leader correlates with the technical leader and the coordinator to define

- if counter-steering measures need to be taken, and

- which project level (project bodies) will be appropriate to deal with the risk.

Basically, the WP leader correlates with the technical leader and the coordinator regarding the risk which occurred or is expected to occur. If it has no major impact on the project and appropriate actions can be taken by the WP leader, the risk will be handled at this level. In case a risk is expected to create major impact on the project, the Executive Board (EB) or the General Assembly (GA) will be involved. In case of substantial risks or major delays, the coordinator also informs the Project Officer and provides a brief assessment of the situation.

Therefore, the structure of the project bodies and the clear definition of responsibilities for each project body, defined during the proposal phase, have been proven and allow clear and swift communication of risks as outlined in Chapter 2.1 Project Bodies.

The governing culture of CONNECT is based on democracy, co-determination and clear leadership. Each body operates on separate levels and has its own area of responsibility and decision-making power. Based on the expected impact of a risk, the coordinator will assemble the EB or GA in a telephone conference to discuss counter-steering measures. For risks that affect the overall strategy,

and may threaten part of the project outcomes, the GA, as the highest decision-making body will deal with this risk. Risks causing minor delays or minor changes in the work plan will be handled by the EB.

The GA and EB members are experts in their fields and therefore, capable of estimating the effects of the risks as well as of countermeasures. The responsible body discusses if the already proposed mitigation plan is still suitable or if other actions need to be taken or are more suitable to the risk occurred. The decision regarding the countermeasures will be taken according to the voting rules defined in the Consortium Agreement. Basically, the WP leader will be in charge of appropriate realization of the defined risk mitigation measures. All applied measures, arising challenges or chances will be documented in the risk table.

Beside the decision-making bodies in the CONNECT structure, an Advisory Board supports the consortium with an external, unprejudiced view. This can also be seen as a risk minimizer as it makes sure that the project outcomes will meet the market expectations and do not fail to meet substantial market-specific needs.

4.4 Managing CONNECT Risks

This chapter illustrates the implementation of the previously described risk tools into the CONNECT project structure. It presents the defined risks, Section 4.3.2, a shows the development of the risks based on probability/severity estimations at several evaluations and tries to assess the current status of the risk. As the WP leaders are the main responsible persons for the risks of their WPs, this section is built up on WP level.

As described in probability/severity analysis is used to qualitatively evaluate the risk status. The scale for the probability variables has been defined as low, medium or high and the scale for severity/impact has been defined as marginal, critical and catastrophic.

	Low	**Medium**	**High**
Probability	Less than *<30%>* probability of occurrence	Between *<30%>* and *<70%>* probability of occurrence	More than *<70%>* probability of occurrence
	Marginal	**Critical**	**Catastrophic**
Severity	Risk has relatively little impact the projects technological and financial performance as well as the schedule	Risk has the potential to impact the projects technological and financial performance as well as the schedule	Risk has the potential to greatly impact the projects technological and financial performance as well as the schedule

Table 4: Probability/Severity matrix

Risks with a high level of probability and/or severity are monitored very closely. They are subject to review within biweekly/monthly technical progress conference calls. Furthermore, the project management team is in contact with the WP leader in order to monitor the development of such risks. In the future the risk assessment on WP level will be performed on a quarterly basis. In order to support the WP leaders to perform the risk assessment and to help them fill in the complex risk assessment template, TECHNIKON illustrated the risk assessment process shown in Figure 7. According to the given answers the WP leads have to fill in different questions.

For example:
- o _If the risk materialised_ the WP leads have to fill in also the questions: **h)** Explain the reason why it materialised? & **i)** What are the consequences? & **j)** What are the corrective actions & updated mitigation measures?
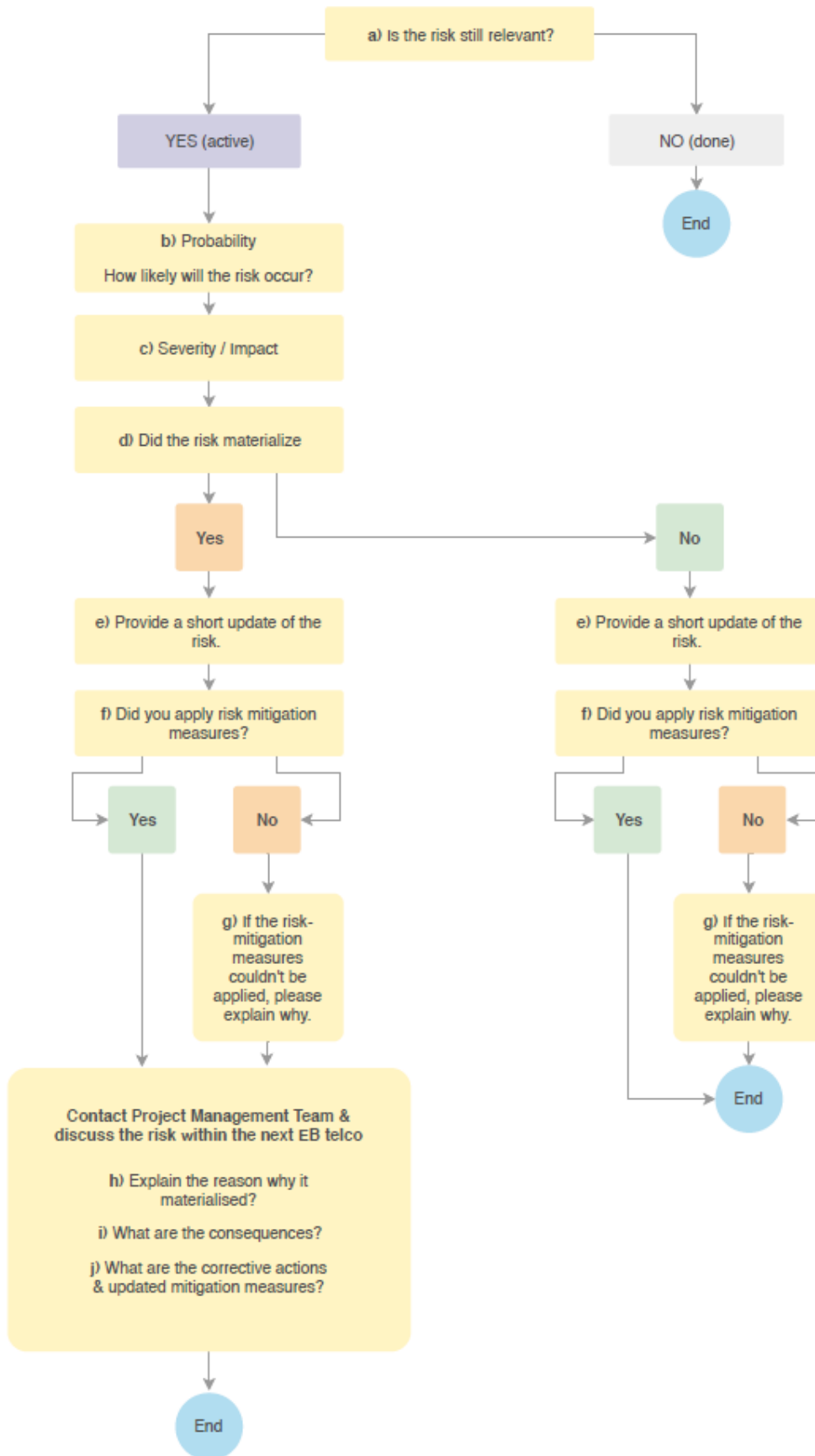- o _If the risk did not materialise_ the WP leads do not have to fill in these further questions.

Figure 7: CONNECT Risk Assessment Process

There were altogether 10 pre-defined risks in the Description of Action. During the first project year, the consortium identified 5 new risks (R1.3, R2.2, R3.2, R5.2 and R6.4) through close risk monitoring. For these new risks appropriate mitigation measures were proposed and implemented in order to prevent their occurrence. The CONNECT project partners are able to handle risks and to prevent them from materializing in most of the cases. The following tables present the risk assessment for each risk in each of the WPs.

4.4.1 WP1 Risk assessment

		Risk Evaluation Form WP1									
Nr.	Responsible Partner	Description of risk	Proposed risk-mitigation measures	Date of last evaluation	Is the risk relevant?	Probability How likely will the risk occur?	Severity/Impact	Did the risk materialise? (Yes/No)	Please provide a short update of the risk:	Did you apply risk mitigation measures? (Yes/No)	If the risk-mitigation measures couldn't be applied/weren't applied, please explain why.
R1.1	TEC	Lack of know-how, due to the departure of key member	Partners will manage technical vitality, committing to allocate alternative personnel in case of departure of key personnel	March 2023	YES	Medium	Critical	NO	No key partners/members have left	YES	N/A
				August 2023	YES	High	Critical	YES	RHT has announced to leave the consortium.	YES	N/A
R1.2	TEC, UBITECH	Delays caused by not meeting the tasks deadlines	Partners involved in delayed tasks will allocate further resources to meet deadlines. Agile project management and regular calls will mitigate the risk of falling behind schedule	March 2023	YES	Medium	Critical	NO	All deadlines have been met. There is close contact among all partners and work progress is continuously monitored by means of technical progress conf calls and IMR.	YES	N/A

Risk Evaluation Form WP1					Current assessment of risk						
Nr.	Responsible Partner	Description of risk	Proposed risk-mitigation measures	Date of last evaluation	Is the risk relevant?	Probability How likely will the risk occur?	Severity/Impact	Did the risk materialise? (Yes/No)	Please provide a short update of the risk:	Did you apply risk mitigation measures? (Yes/No)	If the risk-mitigation measures couldn't be applied/weren't applied, please explain why.
						Medium	Critical	YES	Until now all partners are performing as expected		
				August 2023	YES	Medium	Critical	YES	A request has been sent to delay the submission of D2.1 and D5.1 for 2 weeks.	YES	N/A
R1.3	TEC, UBITECH, UULM	Deficient innovations impact	Technical coordination will ensure that the innovation activities remain relevant	August 2023	YES	Low	Catastrophic	UBITECH TO UPDATE	UBITECH TO UPDATE		

Explanation why R1.1 materialized: An internal restructure and the inability to replace core staff after their departure has lead for RHT to withdraw from the project.

Consequences: Responsibilities of RHT will be replaced by other CONNECT partners meaning a shift in resources. No further impact is anticipated.

Corrective actions: A mitigation plan has been set up and is currently in process to be taken further.

4.4.2 WP2 Risk assessment

Risk Evaluation Form WP2				Current assessment of risk							
Nr.	Responsible Partner	Description of risk	Proposed risk-mitigation measures	Date of last evaluation	Is the risk relevant?	Probability How likely will the risk occur?	Severity /Impact	Did the risk materialise? (Yes/No)	Please provide a short update of the risk:	Did you apply risk mitigation measures? (Yes/No)	If the risk-mitigation measures couldn't be applied/weren't applied, please explain why.
R2.1	UBITECH, UULM	Requirements do not satisfy use case implementations	Collaboration between academic, industry and use case partners will ensure discussion on evolving requirements. Reference architecture can be adapted to respond to new needs for use cases	August 2023	Yes	Medium	Critical	NO	All requirements that need to be achieved by the CONNECT framework were fleshed out and discussed in the context of D2.1. They were the results of multiple discussions between both the technical partners of the consortium and the use case partners specifically with the feasibility of the demonstrators in mind. KPIs have already been defined. However, as the project progresses with the design and implementation of the CONNECT components, this risk will be closely monitored in the case that there is some	YES	N/A

		Risk Evaluation Form WP2				Current assessment of risk					
Nr.	Responsible Partner	Description of risk	Proposed risk-mitigation measures	Date of last evaluation	Is the risk relevant?	Probability How likely will the risk occur?	Severity /Impact	Did the risk materialise? (Yes/No)	Please provide a short update of the risk:	Did you apply risk mitigation measures? (Yes/No)	If the risk-mitigation measures couldn't be applied/weren't applied, please explain why.
									unexpected inconsistency during the evaluation of the requirements in the context of the use cases.		
R2.2	partner xy	Complicated CONNECT architecture to be deployed in the context of the use cases	Follow a modular approach during the design of the reference architecture so that in the case of an update needed in the interfaces definition (as progress is been made in the design of the specific protocols), this can happen with the minimal impact on the designs of the other components	August 2023	YES	Medium	Marginal	NO	The CONNECT Reference Architecture has been designed with modularity in mind. The components that are more the most complex (e.g., Trust Assessment Framework, TEE Guard) have been identified so that as their under design, there is a close collaboration with the other CONNECT components (that they need to interact) so that if an updated needs to be	YES	N/A

Risk Evaluation Form WP2				Current assessment of risk							
Nr.	Responsible Partner	Description of risk	Proposed risk-mitigation measures	Date of last evaluation	Is the risk relevant?	Probability How likely will the risk occur?	Severity /Impact	Did the risk materialise? (Yes/No)	Please provide a short update of the risk:	Did you apply risk mitigation measures? (Yes/No)	If the risk-mitigation measures couldn't be applied/weren't applied, please explain why.
									considered to be done early in the process.		

4.4.3 WP3 Risk assessment

		Risk Evaluation Form WP3			Current assessment of risk						
Nr.	Responsible Partner	Description of risk	Proposed risk-mitigation measures	Date of last evaluation	Is the risk relevant?	Probability How likely will the risk occur?	Severity/Impact	Did the risk materialise? (Yes/No)	Please provide a short update of the risk:	Did you apply risk mitigation measures? (Yes/No)	If the risk-mitigation measures couldn't be applied/weren't applied, please explain why.
R3.1	UBITECH, UULM, UNISYSTEMS, SUITE5	Risk Assessment methodology for CCAM not completed	Joint research activities with WP3 & WP4 for better incorporating the specificities of the CONNECT integral components	June 2023	NO	Low	Critical	NO	Through regular exchange between WP3 and WP4, we ensured good synchronization and compatibility.	NO	The mitigation measures will be applied in the future as needed.
				August 2023	NO	Low	Critical	NO	Through regular exchange between WP3 and WP4, we ensured good synchronization and compatibility.	YES	N/A
R3.2	UULM	Not being able to proceed with the implementation of the TAF as planned	Time plan for the implementation will be set up at the next plenary meeting in Munich in October 2023 and will	August 2023	YES	Medium	Critical	NO	Anticipating the risk of delays in TAF implementation with the goal of decreasing the risk with	NO	The mitigation measures will be applied in the future as needed.

	Risk Evaluation Form WP3			Current assessment of risk							
Nr.	Responsible Partner	Description of risk	Proposed risk-mitigation measures	Date of last evaluation	Is the risk relevant?	Probability How likely will the risk occur?	Severity/Impact	Did the risk materialise? (Yes/No)	Please provide a short update of the risk:	Did you apply risk mitigation measures? (Yes/No)	If the risk-mitigation measures couldn't be applied/weren't applied, please explain why.
			continuously be monitored.						proper planning.		
R3.3	UULM	The approach of the TAF is not suitable as a security mitigation for CCAM	Perform first evaluation to clarify applicability.	August 2023	YES	N/A	Critical	NO	Unable to estimate the probability of risk materializing prior to performing initial evaluations of the TAF.	NO	The mitigation measures will be applied in the future as needed.

4.4.4 WP4 Risk assessment

		Risk Evaluation Form WP4				Current assessment of risk					
Nr.	Responsible Partner	Description of risk	Proposed risk-mitigation measures	Date of last evaluation	Is the risk relevant?	Probability How likely will the risk occur?	Severity/ Impact	Did the risk materialise? (Yes/No)	Please provide a short update of the risk:	Did you apply risk mitigation measures? (Yes/No)	If the risk-mitigation measures couldn't be applied/weren't applied, please explain why.
R4.1	UBITECH, UULM, UNISYSTEMS, SUITE5	Risk Assessment methodology not completed	Joint research activities with WP3 & WP4 for better incorporating the specificities of the CONNECT integral components	August 2023	YES	Low	Marginal	NO	Design activities for the core TEE-related artifacts has already commenced to provide the appropriate security controls against an attack vectors that has been discussed early in the process and documented in D2.1. A detailed TARA has already been envisioned to take place in the context of T3.3 so results will become available to check whether any additional	NO	N/A

	Risk Evaluation Form WP4			Current assessment of risk							
Nr.	Responsible Partner	Description of risk	Proposed risk-mitigation measures	Date of last evaluation	Is the risk relevant?	Probability How likely will the risk occur?	Severity/ Impact	Did the risk materialise? (Yes/No)	Please provide a short update of the risk:	Did you apply risk mitigation measures? (Yes/No)	If the risk-mitigation measures couldn't be applied/weren't applied, please explain why.
									security mechanisms will be needed to be incorporated in the second version of the TEE Guard		
R4.2	SURREY, INTEL, RHT, UBITECH, UULM	Computational resources at OBUs are insufficient to run the CONNECT TEE and attestation enablers	The TEE extensions and attestation mechanisms to be implemented will consider the resource constraints. If necessary, part of the functions will be offloaded to the MEC and/or Backend as part of CONNECT's fast offloading policies	August 2023	YES	Medium	Critical	NO	We are rather early in the process to be able to evaluate this risk since WP4 is still in the design phase (of all core artifacts) and we haven't started the implementation yet. However, there are discussions on the resources that will be needed for hosting the	NO	N/A

		Risk Evaluation Form WP4		Current assessment of risk							
Nr.	Responsible Partner	Description of risk	Proposed risk-mitigation measures	Date of last evaluation	Is the risk relevant?	Probability How likely will the risk occur?	Severity/ Impact	Did the risk materialise? (Yes/No)	Please provide a short update of the risk:	Did you apply risk mitigation measures? (Yes/No)	If the risk-mitigation measures couldn't be applied/weren't applied, please explain why.
									environment where the CONNECT TEE attestation enablers will need to run and the consortium is taking appropriate measures to make sure that they will be able to instantiated in each use case test site. E.g., selection of efficient and lightweight technologies such as Kubernetes for enabling the communication of the vehicle TEE Guard with the MEC. There is the plan for		

Risk Evaluation Form WP4				Current assessment of risk							
Nr.	Responsible Partner	Description of risk	Proposed risk-mitigation measures	Date of last evaluation	Is the risk relevant?	Probability How likely will the risk occur?	Severity/ Impact	Did the risk materialise? (Yes/No)	Please provide a short update of the risk:	Did you apply risk mitigation measures? (Yes/No)	If the risk-mitigation measures couldn't be applied/weren't applied, please explain why.
									the consortium to also establish a backup plan early in the process in the case that it turns out to be difficult for the integration of the TEE enablers to the testing environments of the use case partners.		

4.4.5 WP5 Risk assessment

	Risk Evaluation Form WP5			Current assessment of risk							
Nr.	Responsible Partner	Description of risk	Proposed risk-mitigation measures	Date of last evaluation	Is the risk relevant?	Probability How likely will the risk occur?	Severity/ Impact	Did the risk materialise? (Yes/No)	Please provide a short update of the risk:	Did you apply risk mitigation measures? (Yes/No)	If the risk-mitigation measures couldn't be applied/weren't applied, please explain why.
R5.1	ICCS, UBITECH	Strong fragmentation of interfaces exposed by MEC and Cloud domains prevents the easy integration of the orchestration framework components	The definition of the interfaces between architectural components will be driven and coordinated in T2.4 and for the orchestration module in T5.2 & T5.3. Standard interfaces will be adopted when available. WP6 relies on plugins to interact with cloud/edge platforms and tools or network controllers exposing specific or proprietary interfaces. ICCS & UBITECH have strong experience in terms of integration between NFV MANO frameworks, cloud platforms and VIM controllers	March 2023	YES	Medium	Critical	NO	The process of designing the architecture (D2.1) is still on-going. Detailed interfaces are yet to be defined, so the risk cannot be practically estimated at the current time	NO	N/A
				August 2023	YES	Medium	Critical	NO	D2.1 is now being finalised. Detailed interfaces are yet to be defined , so the risk cannot be practically estimated at	NO	N/A

	Risk Evaluation Form WP5			Current assessment of risk							
Nr.	Responsible Partner	Description of risk	Proposed risk-mitigation measures	Date of last evaluation	Is the risk relevant?	Probability How likely will the risk occur?	Severity/ Impact	Did the risk materialise? (Yes/No)	Please provide a short update of the risk:	Did you apply risk mitigation measures? (Yes/No)	If the risk-mitigation measures couldn't be applied/weren't applied, please explain why.
									the current time		
R5.2	ICCS	The requirements and architecture work (reflected in D2.1) absorbs most of the resources/time of the involved partners in WP5 and the Deliverable D5.1 needs more time than planned	The EU authorities will be notified and a short extension will be requested	July 2023	YES	Medium	Marginal	NO	N/A	NO	N/A
				August 2023	YES	Medium	Marginal	YES		YES	

Explanation why R5.2 materialized: D2.1 required large effort due to its very large scope. The deliverable has become very extensive and has attracted most of efforts of CONNECT partners including those contributing to the D5.1

Consequence: No circumstances are expected. D5.1 is mainly a state-of-the-art deliverable.

Corrective actions: The deliverable will be delayed for a few weeks and the PO was informed in-time.

4.4.6 WP6 Risk assessment

	Risk Evaluation Form WP6			Current assessment of risk							
Nr.	Responsible Partner	Description of risk	Proposed risk-mitigation measures	Date of last evaluation	Is the risk relevant?	Probability How likely will the risk occur?	Severity/ Impact	Did the risk materialise? (Yes/No)	Please provide a short update of the risk: (e.g.: What has happened? , Why is it (not) relevant at the moment?, etc.)	Did you apply risk mitigation measures ? (Yes/No)	If the risk-mitigation measures couldn't be applied/weren't applied, please explain why.
R6.1	UBITECH, UULM	Requirements do not satisfy use case implementations	Collaboration between academic, industry and use case partners will ensure discussion on evolving requirements. Reference architecture can be adapted to respond to new needs for use cases	August 2023	YES	Low	Marginal	NO	This is a longer term risk that has not emerged thus far during the WP. The requirements were developed through close collaboration and discussion between research and use case partners, specifically with feasibility of the demonstrators in mind	NO	N/A
R6.2	DENSO, CRF, IRTSX, SUITE5	Complexity of target scenarios	The scenarios will be split into sub-scenarios and applications to alleviate the relevant complexity	August 2023	YES	Medium	Critical	NO	Although early in the process, use case scenarios have been defined in the context of D2.1 with parallel discussions on their instantiation in the respective pilot sites. There were detailed discussions on defining scenarios that allow for the evaluation of all CONNECT artifacts in scenarios with varying level of complexity so as to be able to perform a	YES	N/A

Risk Evaluation Form WP6				Current assessment of risk							
Nr.	Responsible Partner	Description of risk	Proposed risk-mitigation measures	Date of last evaluation	Is the risk relevant?	Probability How likely will the risk occur?	Severity/ Impact	Did the risk materialise? (Yes/No)	Please provide a short update of the risk: (e.g.: What has happened? , Why is it (not) relevant at the moment?, etc.)	Did you <u>apply</u> risk mitigation measures? (Yes/No)	If the risk-mitigation measures couldn't be applied/weren't applied, please explain why.
									more detailed and thorough benchmarking.		
R6.3	UNISYTEMS, TRIALOG	Insufficient users engagement and motivation in evaluation	Early mobilization of resources in the pilots' sites through supplementary co-creation and integration activities, engaging all technical partners of the consortium	August 2023		Low	Critical	NO	The preparation for the use case evaluation is still at a very early stage since the focus thus far was on the finalization of the specific scenarios of interest per use case. However, there is already a plan discussed for the early deployment of these scenarios (and evaluated CCAM services) in the pilot sites of the use case partners so as to be able to reserve the necessary resources. This risk will be monitored in detailed especially after M18 where the integration and deployment phase commences	NO	N/A

		Risk Evaluation Form WP6			Current assessment of risk							
Nr.	Responsible Partner	Description of risk	Proposed risk-mitigation measures	Date of last evaluation	Is the risk relevant?	Probability How likely will the risk occur?	Severity/ Impact	Did the risk materialise? (Yes/No)	Please provide a short update of the risk: (e.g.: What has happened? , Why is it (not) relevant at the moment?, etc.)	Did you apply risk mitigation measures ? (Yes/No)	If the risk-mitigation measures couldn't be applied/weren't applied, please explain why.
R6.4	partner xy	Underesti mated time for pilots realization	The design and implementation of the pilots will start early in CONNECT, from the in-depth identification of the requirements and the supported use cases for each vertical, the scope definition and planning, and the two development-demonstration cycles	August 2023	YES	Low	Marginal	NO	Everything is progressing according to plan as it pertains to the definition of the scenarios to be implemented and evaluated per use case. This risk will be continuously monitored when the implementation of the specific CONNECT technical components will be close to finalization so as to make sure that any additional integration efforts will not cause any delays in the use case realization	YES	N/A

4.4.7   WP7 Risk assessment

		Risk Evaluation Form WP7			Current assessment of risk						
Nr.	Responsible Partner	Description of risk	Proposed risk-mitigation measures	Date of last evaluation	a) Is the risk relevant?	b) Probability How likely will the risk occur?	c) Severity/Impact	d) Did the risk materialise? (Yes/No)	e) Please provide a short update of the risk:	f) Did you apply risk mitigation measures? (Yes/No)	g) If the risk-mitigation measures couldn't be applied/weren't applied, please explain why.
R7.1	TEC, UBITECH, UULM	Deficient innovations impact	Technical coordination will ensure that the innovation activities remain relevant	March 2023	YES	Low	Catastrophic	NO	N/A	YES	N/A
				August 2023	YES	Low	Catastrophic	NO	Fill in	Fill in	Fill in
R7.2	FSCOM, TRIALOG	Lack of standardization activities during DevOps	The project pursues several standardization activities during the project from partners that have already established strong connections and are actively participating/leading many WGs. This close interaction will be maintained and monitored from the project's start	March 2023	YES	Low	Catastrophic	NO	N/A	YES	N/A
				August 2023	YES	Low	Catastrophic	NO	Standardisation activities on Digital Twin and Misbehavior detection are underway	YES	

Chapter 5   Summary and Conclusion

This Project Quality Plan demonstrates how quality aspects are taken into account in a variety of processes and activities within the CONNECT project. The interrelated quality processes – planning, assurance and control – impact the project work from its start to its end. The project aims at obtaining a high degree of quality, where outcomes are achieved in terms of the effectiveness and efficiency of working practices, as well as products and standards of project deliverables and outputs.

This plan establishes the procedures and standards to be implemented in the project, and allocates responsibility to ensure that these procedures and standards are correctly pursued. The Project Management Team (Coordinator and Technology Leader) make sure that the above-described processes are put into practice. In case of deviations from the original work plan, it is in charge of implementing necessary mitigation measures.

The Project Quality Plan is effective throughout the lifetime of the project, but is open for revision if necessary. As described in Chapter 3, responsibilities for quality planning, assurance and control are shared between all partners.

The described risk assessment plan indicates how the CONNECT consortium is and will avoid tripping over rocks on the road to success. Based on theoretical inputs, as described in Section 4.3, the CONNECT risk management tends to professionally identify, analyse, monitor and handle highly innovative project risks. The risk tables also identify the realistic challenges and their impact towards commercialization. The risks are prioritized according to their probability and severity. Several tools, such as Interim Management Reports, regular progress conference calls and face-2-face meetings are used to monitor the risks appropriately.

There were altogether 10 pre-defined risks in the Description of Action. During the first project year, the consortium identified 5 new risks in WP1, WP2, WP3, WP5 and WP6. For these new risks appropriate mitigation measures were proposed and implemented in order to prevent their occurrence. The CONNECT project partners are able to handle risks and to prevent them from materializing in most of the cases.

Risk Assessment is a process, which will last throughout the lifetime of the CONNECT project. Updates and assessments will be regularly performed by the consortium and reported within the Periodic Reports.

Chapter 6 List of Abbreviations

Abbreviation	Translation
CA	Consortium Agreement
DoA	Description of Action (Annex 1 of the Grant Agreement)
DMP	Data Management Plan
EB	Executive Board
EC	European Commission
GA	Grant Agreement
ICT	Information and Communication Technologies
IMR	Interim Management Report
NDA	Non-Disclosure Agreement
PM	Person Month
PR	Periodic Report
WP	Work Package

Bibliography

ISO 31000. (2023, Juni). Retrieved from https://www.iso.org/iso-31000-risk-management.html