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Deliverable 9.1. Risk identification

Acronym: **C-SERVEES**
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	00	AIMPLAS	Document creation
	01	AIMPLAS	Updating the initial Risk identification Table with inputs from WP Leaders.
	02	TMC	Validation of the new Risk identification Table – M6

1. Executive Summary

The purpose of this Deliverable is to collect the information of task 9.2 "Risk Management" development, starting with the identification of the main risk indicators for the project development which will be monitored along the project implementation.

This document provides a risk management framework for the C-SERVEES project, to anticipate possible difficulties, which could arise, with the aim of ensuring a smooth and successful implementation for the project to achieve its objectives.

Therefore, this document provides an approach to identify, evaluate, monitor and control the risks of adverse situations which can negatively affect the outcomes of the C-SERVEES project.

The Initial Risk identification Table built during the proposal phase and included in the C-SERVEES DoA (Annex I of Grant Agreement) has been updated and included at the end of this document as the **Risk identification Table - M6**, where the foreseen risks are presented along with their corresponding mitigation measures.

An update will be reported with the official reports in M18, M36 and M48.

Content

List of Figures and Tables

2. Acronyms and abbreviations

PC	Project Coordinator
WP	Work Package
WPs	Work Packages
TMC	Technical Management Committee
WIP	Work Implementation Plan
M	Month of the project
Risk ID	Risk Identifier

3. Introduction

Task 9.2 Risk Management is intended to facilitate the success of the C-SERVEES project, starting from the identification of adverse situations that the project might encounter and anticipating actions to avoid them or minimize their negative consequences. When appropriate, contingency plans and countermeasures will be developed.

The consortium of the C-SERVEES project is composed of 16 partners and 6 linked third parties[1], belonging to a total of 12 countries. The project management structure and its management and coordination procedures have been designed to reduce the risks associated with the complexity of managing such a large consortium.

Since the beginning of the project, a Work Implementation Plan (WIP) has been prepared for each WP, including the planning of the different tasks and actions to be carried out by each participant in the WP throughout the life of the project. These WIP documents will be updated every 6 months and also serve to analyze the progress of the different actions in each semester period.

The preparation and updating of the WIPs will facilitate the identification of possible threats of adverse situations and the possibility of preventing them.

Risk management is a continuous process throughout the project life that implies the identification, evaluation, monitoring and control of risks. These steps of the risk management process are included in this document to help the Consortium to prevent the risks of adverse situations which can negatively affect the outcomes of the C-SERVEES project.

The Initial Risk identificationTable included in the C-SERVEES Grant Agreement has been analysed and updated. The new updated table has been included at the end of the document as the **Risk identification Table - M6** (validated in Month 6), where the foreseen risks are presented along with their corresponding mitigation measures.

An update will be reported with the official reports in M18, M36 and M48.

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[1] At present (October 2018), C-SERVEES Consortium counts on 2 linked third parties, but this number will be increased to 6, after approval of the Amendment to the Grant Agreement that is being launched

4. Risk Management process

The proposed Risk Management Approach considers the following steps, as the Figure 4.a. shows:

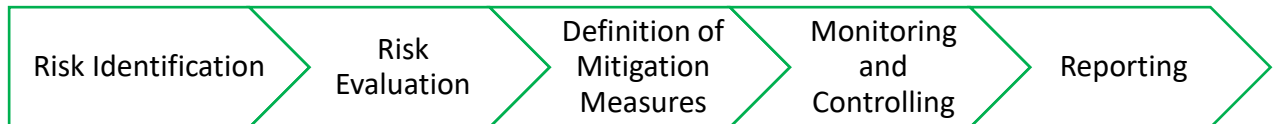| Risk Identification	Risk Evaluation	Definition of Mitigation Measures	Monitoring and Controlling	Reporting

Figure 4.a. Steps of a Risk Management

5. Risk Identification

During the project proposal preparation, a number of possible risks (and their mitigation measures) were identified from both managerial and technical points of view. Those are listed in the **Table 9.a. Initial Risk Identification Table**, which has to be updated in M6 and in each official report.

The continuous identification of Risks will be made for each WP by each WP leader in collaboration with WP participants. This task is facilitated by a detailed planning process (registered in an internal WP Implementation Plan, the WIP).

Beyond the exercise of Risk Identification made during the first months of the project, which has led to the elaboration of the Table 11.a Risk identification Table-M6 at the end of the document, a deep analysis for each WP of the progress of the different tasks and actions associated to the WP, as well as of the Deliverables and Milestones status, will be made every 6 months through the referred internal WP Implementation Plans, facilitating the continuous process of risk identification and monitoring.

Furthermore, continuous communication and periodical meetings (every 2 months, through TMC meetings) will ensure identifying (and monitoring) the risks throughout the project life.

Besides, it is the responsibility of each participant to inform the WP Leaders and the Project Coordinator about new potential risks.

Such process will allow identifying additional risks different from those previously identified, (as well as refining some previously suggested mitigation measures).

6. Risk Evaluation

Risks are evaluated in terms of likelihood and impact if the risk occurs, and the importance of a risk (the risk exposure) is typically calculated as the product of the likelihood and the impact. One approach is to differentiate between Low, Medium and High likelihood, and Low, Medium and High Impact.

A classification of Risk exposure scheme based on assessment of likelihood and impact is presented in Figure 6.a.

For each identified risk, the WP Leader, will estimate its likelihood (Low/Medium/High) and the impact of the problem on the project (Low/Medium/High). This will be revised by the TMC for a more global vision of the real exposure to a given risk.
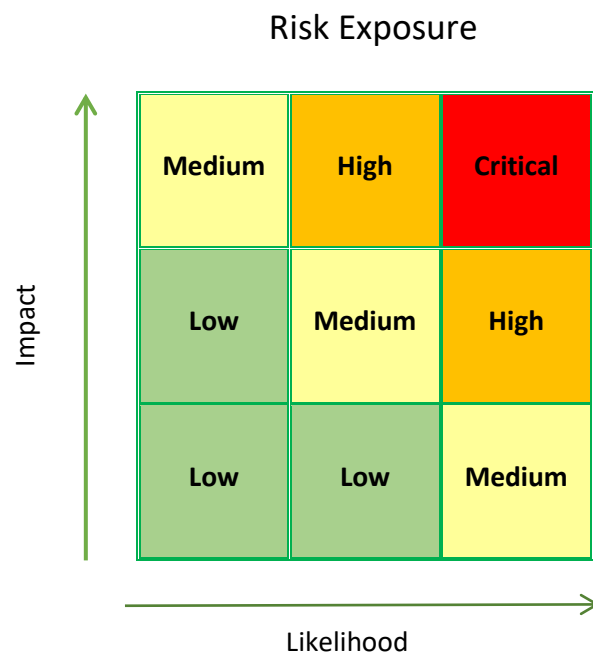
Risk Exposure

Impact ↑		
Medium	High	Critical
Low	Medium	High
Low	Low	Medium

Likelihood →

Figure 6.a. Classification of Risk Exposure

7. Risk mitigation measures

Following the evaluation of the Risk exposure, **for each risk the corresponding WP Leader will propose the corresponding mitigation measures that will be revised by TMC.**

Each WP Leader is responsible for the implementation of the risk mitigation measures which relate to the WP it leads.

If a mitigation measure cannot be effectively carried out or does not solve the risk, the risk exposure will change. In this case, this change has to be registered in a new Risk identification Table and the mitigation measure must be modified in an efficient way.

In the case that a risk affects different WPs, the corresponding WP Leaders will be co-responsible for the definition and implementation of mitigation measures.

8. Risk monitoring

It is the responsibility of all C-SERVEES partners to communicate the WP Leader and Project Coordinator about any incident in the status and effectiveness of any risk mitigation measure, in order to update the Risk identification Table.

The WP Leaders will confirm the correct implementation of the risks mitigation measures related to the WP they are responsible for and will check their effectiveness.

The WP Leader will keep track of the situation and inform the Project Manager.

Risk exposure will be continuously reevaluated and modified accordingly.

If any new risk is identified by a partner, it will be analyzed as those on the original risks list and then added in the Risk Identification Table.

Risk management will be an item on the agenda in all meetings of the Technical Management Committee (every 2 months). Special attention must be paid to the risks which imply a critical level of exposure.

9. Reporting. Risk identification Table

The updated **Risk identification Table** will always be accessible to all members through private intranet in the project website. It will contain the Risk ID, the Risk exposure (through a color code), the Risk likelihood, the Risk impact, the description, the WPs involved and the Proposed mitigation measures

The Table 9.a. **Initial Risk identification Table** below includes the Risks and mitigation Measures already foreseen at the start of the project. In this table, 2 types of risks have been differentiated: implementation risks and technical risks. The implementation risks have the same Risk ID as in the grant agreement. For technical risks the Risk ID is named as RX-Y, where X is the number of the corresponding main associated WP and Y is a consecutive number.

Table 9.a. Initial Risk identification Table

Risk ID	Likelihood /Impact	WPs involved	WP Leaders	Description	Risk Mitigation Measures
Implementation Risks					
1	L/M	All WPs	All WP Leaders	Failure to accomplish deadlines and EC procedures	Experienced coordinator that will keep continuously updated about new procedures.
2	L/H	WP7	VERTECH	IPR/innovation conflicts	A solid Consortium Agreement has been signed before accessing to the G.A, which includes clear rules, Background included/excluded, clear IPR ownership & consensus and conflict resolution mechanisms through the IPREB, external arbitration if necessary
3	L/M	All WPs	All WP Leaders	Partners not committed, under-performing, lack capabilities or leaving	The Partners have a strong network of contacts that can replace such a partner and the RO have broad capabilities to fill some temporary gaps.
4	L/M	WP9	AIMPLAS	Insufficient cooperation among partners	Frequent meetings to keep partners connected. Strong and proven Organizational structure to ensure workflow.
Technical Risks					
R1-1	L/M	WP1, WP2, WP6	WEEE FORUM LOU RINA-C	Low stakeholder participation in the project. Incomplete circular economic business models	Greater involvement of the External Advisory Board. Increase information and dissemination of the project to capture other complementary stakeholders and enhance the participation of the expected stakeholders.
R3-1	L/M	WP3	CIRCULARISE	ICT tools not compatible with electronic devices from a critical number of end-users	Review of interconnectivity and modifications in the tools
R3-2	L/H	WP3	CIRCULARISE	Delayed delivery of the ICT tools	Extend the execution period of the ICT platform and tools development (without changing the overall project deadlines). Development of ICT platform and tools will be an iterative process with testing sprints, in which those functions that most affect the other WPs (specially WP4) can be prioritized. Possibility to run demonstrations in WP4 with Beta versions of the ICT platform/tools, while

Risk ID	Likelihood /Impact	WPs involved	WP Leaders	Description	Risk Mitigation Measures
					also validating delayed functions through a virtual community test environment operated not only by project partners but also by other end users and customers
R4-1	L/M	WP4	GAIKER	Failures in the supply chain (in time or in quantity). Delays in demonstrators	Extend the execution period of the demonstrators (without changing the overall project deadlines). Work on the demonstrator, meanwhile, with other pieces to advance aspects such as optimization or parameterization of disassembly, processing or recycling, among others.
R5-1	M/L	WP5	AIMPLAS	Low representativeness in the demonstrators (due to the relatively short execution times), important in the case of verifying failures in the products, low degradation of the material, among other aspects	Simulation of aging by accelerated methods that would be complemented by theoretical analyses of some aspects.
R5-2	L/H	WP5	AIMPLAS	Negative results at environmental level (high environmental impact), and/or economic (high costs)	Review of models and application of results.
R5-3	L/H	WP5	AIMPLAS	Negative results at the social level (low social acceptance)	Analysis of social barriers. Increase diffusion with special emphasis on the benefits of models.
R6-1	L/M	WP6,	RINA-C	Low involvement of policy makers in the transfer of results	The dissemination of project results will be increased. Preexisting contacts of project partners will be used to directly contact these policy makers or other intermediate positions and increase their participation. It should be noted that the project partners are relevant actors in the sector, in legislation and at the business and research level.

(For Likelihood/Impact L: Low; M: Medium; H: High)

Color Code for Risk exposure (based on Figure 6.a):

Low   Medium   High   Critical

10. Updating the Risk identification Table

The Risk identification Table must be updated at any time when there is an important change related to risk management, mainly:

- When a new risk arises
- If there is a change in a risk exposure
- If it is required to change the mitigation measures to be undertaken for any specific risk
- When a risk situation disappears

Risk Management will be an item in all the TMC Meetings (every 2 months). This will facilitate the updating of the table (only if required) with the unique objective of anticipating any threats that the project could face, in order to minimize any negative impacts and to reach the C-SERVEES outcomes and objectives.

11. Risk identification Table - M6

During the first months of the C-SERVEES project, the Consortium has worked in the analysis and updating of the Initial Risk identification Table.

WP Leaders, in collaboration with participants in the corresponding WP have identified new risks and their corresponding Mitigation measures.

After collecting all the partners inputs, these have been discussed and validated by the Consortium which has led to the **Risk identification Table -M6** included as Table11.a.in this section.

The main changes from the Initial Risk identification Table can be summarized as follows:
- R3-1 Included in the Initial Risk identification Table is not a real risk and has been reformulated in the Risk identification Table - M6, considering the real possible risk.
- R5-1 included in the Initial Risk identification Table, has been renamed (Risk ID has changed) as R4-2 in the Risk identification Table- M6, since in fact this risk is linked to WP4.
- New risks have been identified and included in the Risk identification Table - M6: R1-2, R4-3, R4-4, R 5-3, R6-2, R6-3, R6-4, R6-5 and R8-1.

Table 11.a Risk identification Table - M6

Risk ID	Likelihood /Impact	WPs involved	WP Leaders	Description	Risk Mitigation Measures
Implementation Risks					
1	L/M	All WPs	All WP Leaders	Failure to accomplish deadlines and EC procedures	Experienced coordinator that will keep continuously updated about new procedures.
2	L/H	WP7	VERTECH	IPR/innovation conflicts	A solid Consortium Agreement has been signed before accessing to the G.A, which includes clear rules, Background included/excluded, clear IPR ownership & consensus and conflict resolution mechanisms through the IPREB, external arbitration if necessary
3	L/M	All WPs	All WP Leaders	Partners not committed, under-performing, lack capabilities or leaving	The Partners have a strong network of contacts that can replace such a partner and the RO have broad capabilities to fill some temporary gaps.
4	L/M	WP9	AIMPLAS	Insufficient cooperation among partners	Frequent meetings to keep partners connected. Strong and proven Organizational structure to ensure workflow.
Technical Risks					
R1-1	L/M	WP1, WP2, WP6	WEEE FORUM LOU RINA-C	Low stakeholder participation in the project. Incomplete circular economic business models	Greater involvement of the External Advisory Board. Increase information and dissemination of the project to capture other complementary stakeholders and enhance the participation of the expected stakeholders.
R1-2	L/M	WP1	WF	Insufficient quantity of information collected in the surveys	Set targets for survey returns from stakeholder groups so that the number of survey returns required is known at the outset and each stakeholder group can be targeted accordingly. Establish a strategy for utilising the extensive networks of the Consortium members and the Advisory Board. Each Consortium member has a number of person months assigned to collecting feedback from stakeholders, so there is ample time built in to the project for collecting this. The number of survey returns from each stakeholder group will be monitored closely so that corrective action can be taken should the returns be too low.
R3-1	L/M	WP3	CIRCULA RISE	Low number of end-users ready to download the app to scan the product	The provision of incentives to the users (e.g. loyalty points) will be used, as well as a wide communication through website, events, etc.
R3-2	L/H	WP3	CIRCULA RISE	Delayed delivery of the ICT tools	Extend the execution period of the ICT platform and tools development (without changing the overall project deadlines). Development of ICT platform and tools will be an iterative process with testing sprints, in which those functions that most affect the other WPs (specially WP4) can be prioritized. Possibility to run demonstrations in WP4 with Beta versions of the ICT platform/tools, while also validating delayed functions through a virtual community test environment operated not only by project partners but also by other end users and customers

Risk ID	Likelihood /Impact	WPs involved	WP Leaders	Description	Risk Mitigation Measures
R4-1	L/M	WP4	GAIKER	Failures in the supply chain (in time or in quantity). Delays in demonstrators	Extend the execution period of the demonstrators (without changing the overall project deadlines). Work on the demonstrator, meanwhile, with other pieces to advance aspects such as optimization or parameterization of disassembly, processing or recycling, among others.
R4-2	M/L	WP4	GAIKER	Low representativeness in the demonstrators (due to the relatively short execution times), important in the case of verifying failures in the products, low degradation of the material, among other aspects	Simulation of aging by accelerated methods that would be complemented by theoretical analyses of some aspects.
R4-3	M/L	WP4	GAIKER	Weak connection between developed theory (circular economy business models) and practice (setting up and running of circular economy model demonstrations)	Concerted development of circular economy business models and definition of demonstrations
R4-4	L/H	WP4	GAIKER	Some eco-innovative actions difficult to implement and demonstrate due to specific features of a product	Adaptation of eco-innovative actions to specific features of every product (materials, components, service life, current business model, rational reuse and/or recycling practices, available info acquired and stored by ICT tools) and defined demonstrations
R5-1	L/H	WP5	AIMPLAS	Negative results at environmental level (high environmental impact), and/or economic (high costs)	Review of models and application of results.
R5-2	L/H	WP5	AIMPLAS	Negative results at the social level (low social acceptance)	Analysis of social barriers. Increase diffusion with special emphasis on the benefits of models.
R5-3	M/L	WP5	AIMPLAS	Lack of field/primary data for life-cycle sustainability assessment studies from project partners	Average values from literature and reliable databases will be collected when field/primary data is not available. Stakeholders consultation will be conducted to also gather relevant data for the studies.
R6-1	L/M	WP6, WP8	RINA-C, SAT	Low involvement of policy makers in the transfer of results	The dissemination of project results will be increased. Preexisting contacts of project partners will be used to directly contact these policy makers or other intermediate positions and increase their

Risk ID	Likelihood /Impact	WPs involved	WP Leaders	Description	Risk Mitigation Measures
				participation. It should be noted that the project partners are relevant actors in the sector, in legislation and at the business and research level.	
R6-2	M/L	WP6	RINA-C	The identified standards are not accurate for application to the targeted C-SERVEES processes and products	Measures and guidelines towards the development of new standards will be drafted
R6-3	L/M	WP6	RINA-C	Difficulties in collecting information on successful application of eco-design strategies	An effective dialogue will be set up with partners involved in the demonstration of the C-SERVEES products in order to collect best practices and successful case studies of eco-design measures
R6-4	L/M	WP6	RINA-C	Not all the identified stakeholders might be able to take part in the standardization process.	A careful selection will be carried out aiming at involving at least the key stakeholders whose contribution appears to be essential for a proper development of the activities.
R6-5	L/M	WP6	RINA-C	The approach is too academic/scientific and the resulting standard has limited applicability in the industrial reality.	Industrial players will be significantly involved in order to guarantee and preserve the expected technical purposes.
R8-1	L/M	WP8	SAT	Insufficient number of stakeholders join the network for dissemination and participation	We will use the extensive networks of our Consortium Members and Advisory Board to reach out to stakeholders and will also promote the project through workshops and events as well as newsletters. When using these methods we will encourage the target audience to formally register with the project to enable them to keep abreast of developments. Registration will be through a very simple online form that takes less than two minutes to complete. The strategy will be to combine extensive promotion of the network with a simple way of joining in order to maximise network members. We will do regular monitoring of the results in order to be able to implement corrective measures if necessary.

Likelihood/Impact L: Low; M: Medium; H: High

Color Code for Risk exposure (based on Figure 6.a):

🟩 Low   🟨 Medium   🟧 High   🟥 Critical