ICT - BIOCHAIN

Deliverable 7.2. Risk Assessment and Contingency and Mitigation Plans

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#	Reviewer	Comments
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1. Executive Summary

The deliverable “Risk Assessment and Contingency and Mitigation Plans” of ICT-BIOCHAIN project will be used internally as guide or handbook throughout the duration of the project for implementing risk management procedures over the whole project duration. Target readers and users are the partners in the project who will undertake tasks during the project. The document deals with the methodology for assessing and monitoring and reviewing risks, the structure for reporting risks and any mitigation measures required.

2. Contents

3. Acronyms and abbreviations

WP	Work Package
Dx.x	Deliverable x.x

4. Introduction

This document is the "Risk Assessment and Contingency and Mitigation Plans" of the ICT-BIOCHAIN project and describes the methodology for identifying and monitoring project risks throughout the duration of the projects. Target readers and users are the partners in the project who will implement tasks during the project and deal in some way with risks arising from these tasks.

The methodology for risk management includes risk identification, risk description and identification of risk indicators, risk quantification, risk response, and mitigation measures. There are risks associated with all work packages. From the project plan a range of risks were identified, quantified and control/mitigation measures identified. During the project meetings, and periodically throughout the project, further risks were identified by work package leaders, task leaders and partners, with mitigations proposed. These were added to a risk register updated by work package leaders on a quarterly basis.

The risk register was maintained and updated continuously by ITT in collaboration with the WP and task leaders over the project duration, recording issues that arose during the project, challenging the achievement of project deliverables and milestones. Risks were assessed with regards to severity and likelihood of occurrence as High, Medium or Low, and were documented in the risk register using a traffic light system (green, orange and red) to indicate the associated risks. Where risks were deemed significant, mitigation or control measures were established by work package leaders.

The basis for risk management forms part of coordination and management activities for the project. Risk management is described in the work plan under WP7 "Management and Coordination" described in the 7.5 "Project implementation risk management", ongoing throughout the whole duration of the project (M1-M24).

5. Risk Assessment Methodology

From the proposal phase the project consortium were aware that potential risks may occur during the lifecycle of the project. An initial identification of risks with control measures was included in the proposal phase (see Table 1 below). In order to collect additional risks during the project implementation phase, work package plans outlined by work package leaders on a bi-annual basis include a risk assessment which required work package leaders to identify the risks associated with their work packages on a regular basis. In additional Work Package Leaders were required to update the risk register on a quarterly basis to identify risks associated with their Work Package. In this process Work Package leaders were required to liaise with task leaders where the risks of a particular task may not be clear. Risks were sometimes identified during the monthly consortium meeting, during which a risk update was always included. Risks identified during the implementation phase were added to the risk register along with those identified in the proposal phase.

Table 1: Initial Risks Identified at Proposal Phase

	Description of Risk	WP	P	I	Control	Proposal risk-mitigation measures
	COORDINATION AND MANAGEMENT					
A	Poor WP operation and communication leading	All	M	H	Regular WP meetings; Sound communications tools and development of a tracking process.	Re-assess project management procedures implemented. Prioritize remaining workload and move resources and/or partners as appropriate to reduce delays.
B	Partners with unique know-how within the project leave or under-perform.	All	L	H	To ensure regular reporting and good communication between all partners and WP leaders.	Communicate any such issues to all partners and request a change in personnel if appropriate
C	Risks involving WP cost/time overrun.	WP7	L	H	Although the resources for the project have been assessed, the project management will check the project expenditures every 12 months.	
	TECHNICAL RISKS					
D	Information on proprietary solutions not available	WP1	1	1	Partners have already engaged in many previous projects in identification of novel ICT, IoT and Industry 4.0 solutions, and the novel application of existing ICT, IoT and Industry 4.0 tools	The analysis will also identify where gaps and opportunities exist within supply chains for new ICT, IoT and Industry 4.0 solutions
E	Low stakeholder commitment to participating surveys and interviews	WP1	2	2	Model demonstrator regions actively participating as partners with heavy links to regional industry	Engaging relevant stakeholders early on and ensuring that the Model Demonstration Regions are actively involved.
F	Low involvement of stakeholders in the DiHs.	WP2	M	H	Stakeholder engagement activities (KPIs -Assistance to the workshops, etc...) and currently several LoIs.	It will be overcome by having a customized-tailored communication approach so as to maximise the delivery of key messages such as the benefit of joining the DiHs.
G	To change (legal) requirements	WP3	H	M	To review the requirements and priorities at legal level during the project every 3 Months.	Using SCRUM as a software development management strategy
H	Country specific (legal) requirements and differences	WP3	L	H		Having a European consortium, collecting requirements directly at the beginning of the project and using SCRUM.
I	Lack of ICT, IoT and Industry 4.0 tools	WP3	M	M	A demonstration day will be scheduled in each MDR to display application of best practices and opportunities available	
J	Difficulty in attracting sustainable investment groups around the high potential opportunities	WP4	M	M	Development and publicization of an investment to identify funding opportunities for high potential opportunities	CTA and ITT to use connection with public and private funding authorities to ensure best chances for investment
K	Lack of participation in value chain coalitions for ICT, IoT and Industry 4.0 Solutions	WP4			To develop a range of knowledge transfer activities members aware of the opportunities at all levels	LOI's have already been received from interested Industry partners
	IMPACT AND REPLICATION RISKS					
L	Lack of interest from others European bio-economy regions.	WP5	L	H	To share the project aim and to engage them during the proposal to increase their awareness during the execution.	The project has obtained a high number of LoIs from the diverse regions to enhance the dissemination of ICT-BIOCHAIN
M	Difficulties for the knowledge transfer from the experience obtained across ICT-BIOCHAIN	WP5	M	H	To ensure that the roadmap generated will approach the barriers of the European Bioeconomy regions for the biomass mobilisation	MDRs will share their experience through Train the Trainer workshops. e-Learning materials for the bioeconomy regions and the technology experts.
N	Lower number of visits to the website than expected	WP6	L	M	Wide dissemination of the URL. SIE will use other channels to draw visitors to the website: social media, newsletter, digital outlets, etc. Promote the website at all the events partners in the consortium attend, as well as in any face-to-face communications. Include the URL in the brochures, the poster, and other dissemination materials generated.	
O	Lack of interest in the ICT-BIOCHAIN results	WP6	L	L	Project results will be presented to the target audience. Dissemination and communication plan will be prepared early in the project and will be updated in every 6M. Highlight the benefits associated with these results according to the bio-based economy concept associated	

The methodology for risk management consists out of four steps:

- Risk identification and description: Areas of potential risk were identified and classified. Initially these were identified by the Work Package leader during the proposal phase. During the implementation phase, risks could be raised by the Work Package leaders but additional risks could be identified by the project coordinator, task leaders and other partners. For example a task leader may be more familiar with the risks associated with a specific task that the work package leader.

- Risk quantification: Determination of the probability of events and their consequences. Risks were assessed with regards to severity and likelihood of occurrence as High, Medium or Low, and will be documented using a traffic light system (green, orange and red) to indicate the associated risks. Likelihood is the probability that the risk actually happens. The impact is the consequence in this case. The risk matrix in Figure 1 below, was used as a mechanism for partners to classify and assess risks during the project. The matrix was included within the risk log and use used during the quarterly risk logs to allow partners to review and where necessary upgrade the risk depending on the level of impact or likelihood. In this case if a risk was coloured either red or yellow a mitigation measure was required from the Work Package leader in order to control the risk.

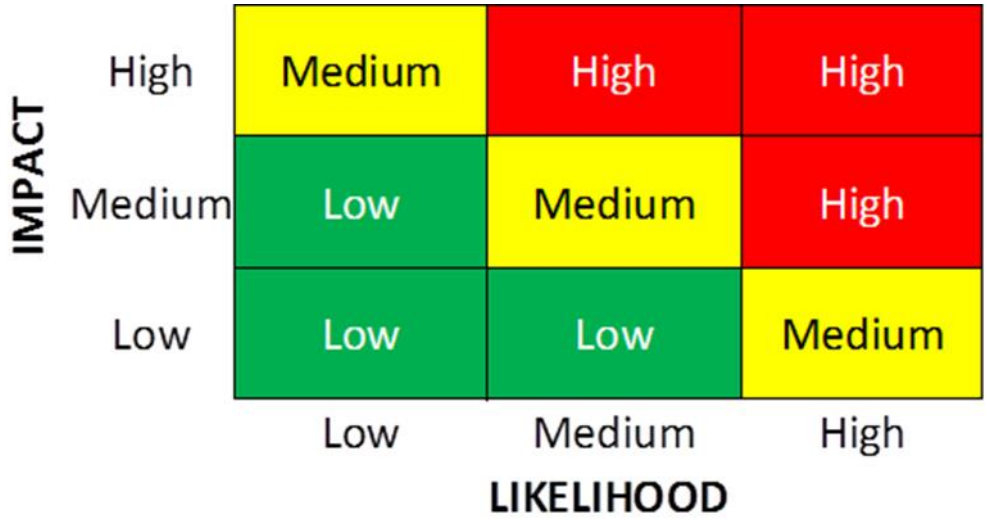

Figure 1: Risk Matrix

- Risk indicators: For each risk a risk indicator was included. These were factors which indicated that the risk may be present and it is a really useful guide for monitoring the presence of risks.

- Mitigation and control: If required from the risk assessment, the Work Package leader was required to add a mitigation to control the risk, and to review this as required in order to ensuring the risk remained under control.

The above steps were completed quarterly throughout the project.

6. Project Risks

The risks identified for the project are included in Table 2 below. The risks identified in the proposal phase are in white, those identified during the implementation phase are shaded in grey. These include risks associated with the setting up of events along with the impacts of dealing with the COVID-19 pandemic. These project risks formed the basis of the risk register which were reviewed formally on a quarterly basis by Work Package leaders and also discussed in monthly consortium meetings. In the cases of the impact of COVID-19, where possible all risks were moved to an online setting (e.g. online meetings and webinars).

Table 2: Project Risks

Description of Risk	*Risk Indicators (factors which indicate that risk may be present)*	*WP Number*
Poor WP operation and communication leading	Lack of regular meetings between consortium partners. Lack of communication between WP leaders and task leaders/participants.	ALL Wps
Partners with unique know-how within the project leave or under-perform	Lower than expected communication and input from partner in question	All WPs
Information on propietary solutions not available	Low level of detail on specific solutions	WP1
Low stakeholder commitment to participating surveys and interviews	Low response rate impacting credibility	WP1
Lack of regional examples related to biomass logistics	Low levels of regional examples identified in T1.1. which could be applied to relevant value chains	WP1
Lack of comparable data on regionally available biomass to develop data models	Bioresource data availability and quality in Spain and Ireland signifiantly different to that used in Scotland model	WP1
Lack of variety of technologies spanning IoT, ICT, Industry 4.0	Scoping in T1.1 and T1.2 delivering significantly more of one type of technology solution (e.g. ICT) as opposed to others (e.g. Industry 4.0)	WP1
Low involvement of stakeholders in the DIHs	Low level of regional results. Low attendance at events.	WP2
Not clear stakeholders commintment to develop their technologies to be applied to biomass mobility	Several ICT Solutions providers with interesting technologies to be applied to biomass mobility still not really commited to do it due to different reasons not clearly identify by them	WP2
DIHs legal structure in compliance with project objectives and regions needs	No agreement at regional level about DIH structure	WP2

Description of Risk	*Risk Indicators (factors which indicate that risk may be present)*	*WP Number*
and expectations could be hard to define		
Change of (legal) requirements	Software licences change from open source to another license model. Data privacy requirements change.	WP3
Country specific (legal) requirements and differences	Country specific data privacy concerns / requirements rise during the project	WP3
Lack of ICT, IoT and Industry 4.0 tools.	Low response rate and results arising in D1.1.	WP3
Challenges defining platform to incorporate data arising from WP1	Platform does not align with information being collated in D.1.1 or the requirements of DiH's	WP3
Difficulty in attracting sustainable investment groups around the high potential opportunities	Low response rate from investment groups, low participation in Investment workshop	WP4
Lack of participation in value chain coalitions for ICT, IoT and Industry 4.0 solutions	Low multi-actor participation in WP4 workshops. Low levels of regionally relevnt solutions.	WP4
Lack of coherence or planning between hubs on delivery of activities	No synergy between events	WP4
Lack of interest from others European bio-economy regions	Low interaction between EU bioeconomy regions and ICT-BIOCHAIN partners during project course. Low workshop uptake.	WP5
Difficulties in transfering knowledge obtained from ICT-Biochain to other regions	Low interaction between EU bioeconomy regions and ICT-BIOCHAIN partners during project course. Low workshop uptake.	WP5
Lower number of visits to the website than expected	Lack of updates on websites. Lack of news/deliverables etc.	WP6
Lack of interest in the ICT-Biochain results	Lack of website visits. Lack of interaction with stakeholders regionally and across EU including bioeconomy regions	WP6
Risks involving WP cost/time overrun	Budget/time overspends highlighted through interim reporting	WP7
Inability to host in person meetings due to COVID 19	Flights being cancelled	WP4, 5, 6 & 7

7. Risk Management and Reporting

While some risks that could negatively impact on the delivery of our objectives were identified at the beginning of the project, as others developed over the course of the project, which were previously unforeseen, they needed to be identified and managed. This required a regular monitoring of the risks. Risk management forms part of the overall Coordination and Management Work Package 7 led by CAPDER and with the specific task (7.5) led by ITT. However in order to ensure risks were identified as early as possible, in a task and work package levels, Work Package leaders were responsible for management of risks within their work package as follows:

WP1: VTT

WP2: CTA

WP3: IML

WP4: ITT

WP5: CAGPDS (former CAPDER)

WP6: SIE

WP7: CAPDER

Following the ICT-BIOCHAIN implementation plan, there were strict timelines to be met on a continuous basis throughout the project, with a large number of deliverables and milestones, and many tasks depending on the successful completion of previous tasks. To help manage successful implementation, the consortium had online meetings each month, supplemented by interim remote meetings as necessary to ensure the effective and timely day-to-day implementation of the implementation plan. During monthly meetings each Work Package leader would present and update of their Work Package and where necessary discuss any identified risks. Where emerging risks were highlight which needed to be addressed, these were be added to the risk register in order to monitor and control during the course of the project. This was also part of the in person bi-annual project meetings. In interim periods as risks arose they were addressed by relevant partners to Work Package leaders, the coordinator and also ITT. Where a risk was identified but no mitigation could be identified by the Work Package leader, the Work Package leader addressed this directly to ITT and the coordinator to agree a plan of action. At operational level, the Work Package Leaders were responsible for ensuring that the task leaders in their work package are on track towards timely completion, in line with those set out in the work plan. WP Leaders were selected for their scientific and management expertise and are well placed to assess progress within their work packages.

8. Quarterly Risk Log

A risk log was created in the project google drive containing all the initial risks identified in the project. During interim reporting these risks were added to the project portal. The risks were reviewed and updated on a quarterly basis during the project and Work Package leaders assessed the current status of the risk. Where the risk is medium (yellow) or high (red) the Work Package leader implemented a mitigation measure to control the risk.

9. Conclusion

The ICT-BIOCHAIN project team implemented a Risk Assessment and Contingency and Mitigation Plans, implemented through Task 7.5 and described in this Deliverable 7.2. The risks were managed through a risk management log with input from Work Package leaders and all partners. While challenges to the project evolved over time, including the COVID-19, successful risk management allowed risks to be identified early and dealt with effectively. This helped the project to achieve its overall goals through successful control of risks and mitigation and contingency plans when required.