



## D7.4 – Exploitation Plan v1

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Asset Level Modelling of RISKS In the Face of Climate Induced Extreme Events and ADAPTtation (RISKADAPT)

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0.4	01/06/2023	RINA-C	V2 of deliverable (adding information)
0.5	27/06/2023	RINA-C	Final version
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### List of Abbreviations and Acronyms

Abbreviation	Meaning
IM	Innovation Management
EC	European Commission
EU	European Union
R&D	Research and Development
M	Mounth
PU	Public
PR	Project Result
Dx.x	Deliverable
BFMULO	(Background, Foreground, Making, Using, Licensing, Other)
IPR	Intellectual Property Rights

## Executive Summary

The present deliverable D7.4 has been developed in the framework of WP7 activities related to the “Dissemination, Communication, Exploitation, Standardisation, Contribution to Policy” of RISKADAPT project results and it is the first main outcome of T7.2 “Exploitation and Business Plan”.

Specifically, this deliverable develops and describes the Exploitation Strategy for the RISKADAPT project consortium at an initial level, aiming at designing a proper and efficient exploitation strategy. This strategy is driven by a lean approach to market outreach and identifies reliable routes to market, in order to guarantee the tangibility and sustainability of the RISKADAPT outcomes after the completion of the project and the end of the funding.

Within this framework and the goal setting, this preliminary version provides an overview of the main Project Results (PRs) under a market perspective, along with an analysis of the RISKADAPT partners responsible for their development, focusing on the related IPR management. This way, the document defines and clarifies the main roles and involvement of each project partner in the project results, both on individual and on the consortium level.

D7.4 will be updated in D6.2. (M18) and in D7.8 (final version) at the end of the project (M36).



## 1. Introduction

The main purpose of this Deliverable is to provide a general, yet comprehensive, framework towards the exploitation strategy that will be followed after the completion of the RISKADAPT project.

In the process of building and designing the Exploitation Strategy, activities have been initially focused on the definition of the RISKADAPT Project Results. The list of Project Results proposed at the proposal stage was presented and, to each result, a partner/partners was identified as the main leader and responsible for the result's development, defining also the contributing partners and their level of involvement. Once the main PR and responsible partners have been defined, the characterization of each result, in terms of TRL and potential stakeholders' interest, has been preliminary done by the responsible partners. Then, the RISKADAPT Consortium exploitation perspectives were presented for each partner. Finally, a description of the next steps was given, where each partner should fill in detail a characterization table including also economic estimations and a complete IPR plan after the completion of the BFMULO analysis.

### 1.1 Purpose of the deliverable

This deliverable is developing the Exploitation Strategy for the RISKADAPT project consortium at an initial level, aiming at designing a proper and efficient exploitation strategy. In this preliminary version provides an overview of the main Project Results under a market perspective, along with an analysis of the RISKADAPT partners responsible for their development, focusing on the related IPR management.

### 1.2 Structure of the deliverable

The structure of the deliverable is presented below:

- In chapter 2, the RISKADAPT Exploitation model.
- In chapter 3, the preliminary characterisation of Project Results.
- In chapter 4, the RISKADAPT Consortium exploitation perspectives.
- In chapter 5, the project results claims and ownership.
- In chapter 6, the conclusions.

### 1.3 Intended audience

The dissemination level of D7.4 is public (PU). The scope of this deliverable is to develop and describe the Exploitation Strategy for the RISKADAPT project consortium at an initial level, aiming at designing a proper and efficient exploitation strategy. There will be two more versions (V2 in M18 and final version at the end of the project M36).

## 2. RISKADAPT Exploitation Model

The definition of Project Results (PR) was considered the first step towards exploitation, in order to provide a clear and concise identification to the consortium. These Project Results have been preliminarily identified and properly characterized, according to the actual activities' status, aiming at evaluating their readiness towards the market. An analysis of the main expectations of project partners was followed, and the evaluation of the partners' roles in the single and joint ownerships was conducted.

The final goal of this analysis is the identification of the exploitation framework, towards the definition of proper strategies for market penetration including all aspects related to the IPR management.

### 2.1 Definition and identification of RISKADAPT project results

To begin with, a definition of Project Result as defined by the European Commission is provided:

“A Project Result is defined as any tangible or intangible output of the action, such as data, knowledge and information whatever their form or nature, whether or not they can be protected.” [1]



**Figure 1: Project Results**

Thus, PR are the outputs generated during the project which can be used and create impact, either by the project partners or by other stakeholders. Project results can be reusable and exploitable (e.g. inventions, prototypes, services) as such, or elements (knowledge, technology, processes, networks) that have potential to contribute for further work on research or innovation.

Dealing with exploitation of results means to evaluate the utilization of results in developing, creating and marketing a product or process, or in creating and providing a service, or in standardization activities.

As explained by means of an extract from the European Commission slides on Dissemination and Exploitation activities in Figure 2.2., it is important to:

- Make use of the results for scientific, societal and economic purposes, or for improving public knowledge and action (e.g., recommendations for policy making); recognizing exploitable results and their stakeholders, as group of entities that are making concrete use of results.

- Concretize the value and impact of the Research & Innovation activity for societal challenges; with this respect, partners shall make best efforts to exploit the results it owns, or to have them exploited by another legal entity (e.g., through making results available under open licenses).



**Figure 2: Dissemination and Exploitation of Project Results**

Given this definition, the list of Project Results (PRs) has been identified (see table below) and confirmed by the Consortium partners. Nevertheless, changes would be considered over time because of the project advancements where a duly update will be performed. Indeed, since this deliverable serves as the first version of the Exploitation Plan, the PRs may still change in the final version of the document.

**Table 1: List of RISKADAPT Results according to the related category**

#	Project Result Category	Project Results	Short description of the results
1	RISKADAPT Methodologies/ Framework approaches	<ul style="list-style-type: none"> <li>• Climate data analytics</li> <li>• Structural assessment based on CC forcing and environmental input.</li> <li>• Glass window damage assessment based on CC forcing.</li> <li>• Probabilistic, integrated safety/LCA/LCC assessment.</li> <li>• CC structural/glass window risk assessment framework.</li> <li>• Assessment of social impacts produced by asset downtime.</li> <li>• CC structural, holistic risk assessment/management framework/ regulations</li> </ul>	<ul style="list-style-type: none"> <li>• The climate data analytics will result to the modelling, analysis, and assessment of the Polyfytos Bridge (Pilot 1)</li> <li>• The Structural Assessment refers to the work on Modelling the building, on Modeling and Analysis of the towers of the transmission line of Pilot 2</li> <li>• The Glass Window Damage Assessment refers to the algorithm for damage estimation from key meteorological parameters</li> <li>• The probabilistic integrated safety LCA/LCC assessment will result to the design of alternative solutions that optimize</li> </ul>

			<p>the cost, resilience and sustainability (LCA) of the Polyfytos Bridge (Pilot 1)</p> <ul style="list-style-type: none"> <li>• The Assessment of social impacts will contribute to the impact analysis of the Polyfytos bridge closure (Pilot 1) and the Cattinara hospital (Pilot 3)</li> <li>• The CC structural, holistic risk assessment/management framework will be adopted as the management framework of the Polyfytos bridge (Pilot 1)</li> </ul>
2	<b>RISKADAPT Tools/Data</b>	<ul style="list-style-type: none"> <li>• PRISKADAPT, including TPRISKADAPT</li> <li>• Climate/hydrological/hydraulic data</li> <li>• Extreme value distribution of rain, temperature and wind Europe wide</li> <li>• Hydrological and hydraulic modelling</li> <li>• Semi-empirical models for estimation of atmospheric load on buildings</li> <li>• Numerical solver for CFD simulations of wind/wind driven rain load on building/glass windows</li> <li>• Structural resistance integration in LCA/LCC of adaptation solutions</li> <li>• Impact assessment models, including engineering and social impacts</li> <li>• MIS</li> </ul>	A set of tools/methods/models/technical solutions and data which are updated and improved within the project duration
3	<b>RISKADAPT Services (at the partner and/or the consortium level):</b>	<ul style="list-style-type: none"> <li>• Training, e.g. on PRISKADAPT, how to select and perform the appropriate assessment, how to correctly use the tools, how to identify required data</li> <li>• Data processing, such as data gathering, data format translation (from the format of the original data to the format required by the target software) and preparation in</li> </ul>	<ul style="list-style-type: none"> <li>• Set of guidelines and procedures</li> <li>• Training and learning materials that will be used as user's guide</li> <li>• Development of new models and enhanced analyses regarding solutions and forecasting of new hazards</li> </ul>

		order to perform further analyses <ul style="list-style-type: none"> <li>• Customizing civil engineering, BIM, CC forcing, LCA/LCC, impact assessment models.</li> <li>• Developing and integrating new models for new hazards/structures/adaptation solutions.</li> <li>• Analyses, such as hazard forecasting and assessment, performing all the required steps.</li> <li>• System maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Provided services related to the maintenance of PRISKADAPT provided under a long term contract</li> </ul>
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Given the above-mentioned analysis, each project result is defined and responsible partners, as main developers of results, assigned. The non-identified owners of some project results will be assigned after the BFMULO analysis (chapter 5). Table below provides an operative overview of the project results, and this will be the reference structure used in the document hereafter.

**Table 2: RISKADAPT Project Results overview**

#1	RISKADAPT Methodologies/ Framework approaches	Owner(s)
1.1.	Climate data analytics	RWM
1.2.	Structural assessment (based on CC forcing and environmental input)	Cattinara Hospital, MTr Fingrid
1.3.	Glass window damage assessment (based on CC forcing)	HKU
1.4.	Probabilistic, integrated safety/LCA/LCC assessment.	RWM
1.5.	CC structural/glass window risk assessment framework.	To be defined
1.6.	Assessment of social impacts (produced by asset downtime)	RWM
1.7.	CC structural, holistic risk assessment/management framework	RWM
#2	RISKADAPT Tools/Data	Owner(s)
2.1.	PRISKADAPT (including TPRISKADAPT)	RISA All technical partners
2.2.	Climate/hydrological/hydraulic data	FMI (climate data?) State/EU/global institutions/agencies (DEM, land use, soil data) ULFGG (calculated hydrological and hydraulic data)
2.3.	Extreme value distribution of rain, temperature and wind Europe wide	To be defined
2.4.	Hydrological and hydraulic modelling	ULFGG
2.5.	Semi-empirical models for estimation of atmospheric load on buildings	UNIBO

2.6.	Numerical solver for CFD simulations of wind/wind driven rain load on building/glass windows	UNIBO
2.7.	Structural resistance integration in LCA/LCC of adaptation solutions	To be defined
2.8.	Impact assessment models (including engineering and social impacts)	RISA RINA-C/RUG (social impact)
2.9.	MIS	
#3	<b>RISKADAPT Services</b>	<b>Owner(s)</b>
3.1.	Training (E.g., on PRISKADAPT, how to select and perform the appropriate assessment, how to correctly use the tools, how to identify required data)	RISA
3.2.	Data processing (such as data gathering, data format translation (from the format of the original data to the format required by the target software) and preparation in order to perform further analyses)	RISA
3.3.	Customizing civil engineering, BIM, CC forcing, LCA/LCC, impact assessment models.	To be defined
3.4.	Developing and integrating new models for new hazards/structures/adaptation solutions.	To be defined
3.5.	Analyses (such as hazard forecasting and assessment, performing all the required steps)	To be defined
3.6.	System maintenance	RISA

### 3. Preliminary characterisation of Project Results

An exploitation model shall contain adequate exploitation strategy, which will ensure successful implementation and the market entry of the identified project results. It is, however, crucial to know the characteristics of each of the results. To this aim, owners of the PRs were asked to answer questions of preliminary level regarding their developments and these outputs were then served as a basis for the formulation of results characteristics. The “to be defined” sections will be filled in the next version (D6.2.) after the BFMULO analysis and the initial results in the technical level of the project. The questions revolved mainly around four key areas and are presented in Table 3.1.:

- The TRL of the project result
- Market context in which the product will be introduced
- IPR management detailing the role of partners involved and their level of involvement

**Table 3: Table of preliminary characterization of the Project Results**

PR	Owner(s)	Partners involved	Level of involvement	TRL at the start	TRL at the end	Stakeholders interested
1.1.	To be defined	To be defined	To be defined	To be defined	To be defined	To be defined
1.2.	RWM Cattinara Hospital Fingrid	UOB, TECNIC, ERRA, MTr	High	To be defined	To be defined	Government, Industry, Research
1.3.	HKU	HKU	High	To be defined	To be defined	Other

1.4.	RWM	UOB	High	To be defined	To be defined	Government, Industry, Research
1.5.	To be defined	To be defined	To be defined	To be defined	To be defined	To be defined
1.6.	RWM	UOB (and others)	Medium	To be defined	To be defined	To be defined
1.7.	RWM	UOB (and others)	Medium	To be defined	To be defined	Government, Industry, Research
#2	<b>Owner(s)</b>					
2.1.	RISA All technical partners	RISA All technical partners	High	4	6	Government, Industry
2.2.	FMI State/EU/global institutions/agencies ULFGG	FMI, ULFGG	High (FMI), Medium (ULFGG)	3	6	Research
2.3.	To be defined	To be defined	To be defined	To be defined	To be defined	To be defined
2.4.	ULFGG	ULFGG	High	3	6	Research
2.5.	UNIBO	UNIBO	High	1	7	Government, Industry
2.6.	UNIBO	UNIBO	High	3	8	Research
2.7.	To be defined	To be defined	To be defined	To be defined	To be defined	To be defined
2.8.	RISA RINA-C/RUG (social impact)	RISA RINA-C/RUG	High	3 or 4	6	Government, Industry
2.9.	To be defined	To be defined	To be defined	To be defined	To be defined	To be defined
#3	<b>Owner(s)</b>					
3.1.	RISA	ERRA, SCN	High	4	6	Government, Industry, Research, Other
3.2.	RISA	RISA	High	4	6	Industry, Research
3.3.	To be defined	To be defined	To be defined	To be defined	To be defined	To be defined
3.4.	To be defined	To be defined	To be defined	To be defined	To be defined	To be defined
3.5.	To be defined	To be defined	To be defined	To be defined	To be defined	To be defined
3.6.	RISA	RISA, ERRA	High	4	6	Government, Industry,

In the next phase, each owner of PRs will be asked to provide detailed information based on the characterization table template (Table 3.2.), and the areas below:

- General description of the Project Result, also containing the innovation elements and the legal, normative and ethical requirements connected to the development.
- Market context enhanced with a market analysis on the potential competitors and specific entities to whom the outcomes of the results should be addressed.
- IPR management updated, including all the project results and the results of BFMULO analysis (which will be conducted for the next version of the deliverable)
- Exploitation strategy expressed in economic level and considering the efforts in terms of activities, cost and time.

**Table 4: Characterization table template – Methodologies and frameworks, Tools/Data, Services**

Project Result General	Project Result # / Title	
	Project Result Short	<i>Short description of the Project Result and of the related service provided</i>

	description/Service Description				
	Innovation content/ Competitive advantage/Benefits	<i>Added value of the project result/service provided from the end-user point of view</i>			
	Legal, normative or ethical requirements connected to the development	<i>Any legal, normative or ethical requirements that shall be kept into account during the development and, potentially after the end of the project (e.g. any legal constraints for the exploitation?)</i>			
	TRL	Before RISKADAPT		After RISKADAPT	
Market	Targeted Market	<i>Example of interested stakeholders for the project result/service (e.g., government, industry, research, other)</i>			
	Customer segments and whom to address (inside the clients' organization)	<i>E.g., Target clients: governmental entities, respective departments of communities (e.g., civil protection)</i>			
	Potential competitors				
IPR	Owner(s) of Result				
	Partners involved (level of involvement)	<i>If there are other partners involved, we will involve them in the exploitation call</i>			
	Joint ownership (Need of agreement before the end of the project?)	Yes/No			
Exploitation Strategy	Exploitation claim	<b>Consultancy service</b>	<b>Academic exploitation</b>	<b>Commercial exploitation (e.g. selling licenses)</b>	<b>Other</b>
		Yes/No	Yes/No	Yes/No	Yes/No
	Revenue streams associated to the above exploitation claim	€	€	€	€
	Estimated effort to bring the Project Result to the market (yearly)	Activities	Cost	Time	

At this stage of the project, the project results have been preliminarily characterized, due to their on-going status and their incomplete current level of development, according to the project timeline. It is however important to underline that information contained in the tables could be modified and updated, up to the project conclusion, according to the project developments in order to keep track of the evolution of the results themselves, and of the partners intentions of exploitation. The final and



full version of the characterization tables for each exploitable result will be provided in the final deliverable D7.8 “Final Exploitation Plan including Business Model” due at the end of the project (M36).

#### 4. RISKADAPT Consortium exploitation perspectives

The consortium includes all the expertise needed in the lifecycle from research to innovation, as well as real-life major users (RWM, MTr, SCN, BIBM, Fingrid). The partners have proven skills and experience in the different fields identified to be strategic for the RISKADAPT objectives as follows:

- CC forcing (FMI, UNIBO, HKU, ULFGG),
- participatory decisions, social/gender dimensions (UU)
- civil engineering, structural adaptation measures (TECNIC, BIBM, UOB, ERRA)
- LCA/LCC (USTUTT), (e) risk analysis, decision support, including large integrated platforms (RINA-C, RISA, ERRA)
- social impacts (RUG)
- Open Science where Open Science practices are followed to the maximum on recent and on-going EU-funded projects in which RISKADAPT partners have a substantial track record. FMI, the leading partner in open science, is one of the first meteorological services in Europe that has provided all its data as Open Data following the INSPIRE-directive of EU. FMI supports all partners to make the generated data available according to the Open Science practices.

Regarding the Industrial/Commercial involvement, a relatively early deployment of the innovative RISKADAPT technologies is feasible as evidenced by the involvement of industrial companies in the project (RINA-C, RISA, ERRA, TECNIC) that will be early adopters of these technologies and provide the means of commercialisation of the results as follows:

- RINA-C, the innovation/exploitation manager, is interested in innovative, green and CC compliant solutions in construction. The fact that RINA-C operates internationally in +70 countries with +200 offices gives a good starting point to promote RISKADAPT to the stakeholders and potential clients worldwide. RISA is interested in software for decision support in the energy, health, construction and transport sectors, mainly for environmental applications. It will broaden its products to include the EO inputs/markets.
- TECNIC/ERRA will use the results to offer additional services.
- All industrial partners offer customisation/consulting services regarding their contribution in RISKADAPT.

Table below provides the template of each partner characterization, including the company description, the related role in the project, how this role will be strengthening the company and the related expectation for exploitation. The current fulfilling of this table is depicting the initial plans of partners as expressed in the GA. Throughout the duration of the project, they will be updated by every partner of the consortium, based on the project’s progress and the directions that the exploitation strategy will provide.





Company name 	Acronym	Country flagship 	Company logo
Company description		Company role in the project	
 Expectation for exploitation		 Key expertise contributing to the project success	

Figure 4.1: Partner characterization table

#### 4.1 Capacity and Exploitation strategy at partner level













RISA Sicherheitsanalysen GmbH	RISA	Deutschland
 RISA is an engineering office specialised in the creation of environmental databases and system analysis in the field of safety and reliability of technical systems. In close collaboration with its business partners, RISA develops practical solutions based on established theoretical concepts.  RISA’s quality guideline is to develop universally applicable solutions and continuously improve them in order to be able to quickly and variably respond to future customer requests and implement them on schedule.		 RISA is the coordinator and system integrator, provides technical and risk management, leads in specifications/architecture, converts the deterministic to probabilistic structural analyses in pilot 3. Also, it provides TPRISKADAPT and the integration of PRISKADAPT
 Expects from RISKADAPT to: <ul style="list-style-type: none"> <li>• broaden its products/services to include the EO market</li> <li>• acquire an adaptive platform that can be used with small changes targeting other vertical business sectors</li> <li>• further develop RISA as a valued contributor to national/European projects</li> <li>• advance development of its data management and decision support software products</li> <li>• raise the profile of RISA’s capabilities in the construction adaptation market</li> </ul>		 The coordinator RISA, (coordinator in ENVIROMED (Horizon Health 2021), ECO-BOT (H2020), LEAKING (FR7) and national research projects), specializes in probabilistic safety, integrated platform solutions for decision support, optimisation and data analysis, including Big Data and IoT, for the nuclear, energy, environment, health, construction and transport domains, and government agencies, including the German Federal Ministry of the Environment (concerning, e.g. IT solutions for the national implementation of EU industrial emissions directive and for the administration of the 4th period of emissions certificate trading)

Figure 3: RISA characterization table





Ilmatieteen Laitos	FMI	Finland
 FMI is a research and service agency for public safety relating to atmospheric, marine and airborne hazards and for satisfying requirements for specialised meteorological products. FMI makes observations and research on the		 FMI leads in WP3 (“Climate Data, CC Forcing, Multi-Hazard Modelling”), T3.1 (“Climate data for hydrological analyses, wind and rain forcing and material degradation. Extreme Value Analyses”) and T6.1.2 (Pilot 2-“Energy Transmission

<p>atmosphere, the near space and the seas and provides services on weather, sea, air quality, climate and near space for the needs of public safety, business life and citizens. The Finnish Meteorological Institute is an administrative branch of the Ministry of Transport and Communications.</p>	<p>Gred subjected to High Winds and Icing’), while also is in charge of technical management regarding climate forcing and leads in Data Management</p>
 <p>FMI is looking for exploiting the results in capacity building projects in developing countries</p>	 <p>FMI produces high-quality observational data and research knowledge about the atmosphere and marine, combining its know-how into weather, climate, air-quality and security related services to the benefit of the society and environment. FMI runs its own super-computing environment and collaborates closely with national, Nordic, and European super-computing centers and operational services such as ECWMF, C3S, EUMETSAT and international organizations such as WMO. Contributions to RISKADAPT will come from the Meteorological Research Unit.</p>

**Figure 4: FMI characterization table**





<p>Universiteit Utrecht</p>	<p>UU</p>	<p>Netherlands</p>
 <p>Utrecht University is a leading international research university where students and top researchers work together towards a better world.</p>	 <p>UU leads into participatory processes and tools for decisions in all phases of decision-making to ensure that the needs of diverse groups are considered, and in gender issues. Specifically, leads in WP2 (‘User Requirements, Architecture’) and T2.1 (‘Stakeholder’s Identification and Engagement, Co-decision on Impacts of Interest/User Requirements’), while in WP5 (‘PRISKADAPT, MIS and Data Gaps) follows and advices, as needed, the process of participatory decisions in pilots.</p>	
 <p>To be updated</p>	 <p>The UU School of Governance studies public issues/organisations in their interaction with the developments in politics and society</p>	

**Figure 5: UU characterization table**





<p>Rijksuniversiteit Groningen</p>	<p>RUG</p>	<p>Netherlands</p>
 <p>The University of Groningen is a research university with a global outlook, deeply rooted in Groningen, City of Talent. Quality has had top priority for four hundred years, and with success: the University is currently in or around the top 100 on several influential ranking lists.</p>	 <p>RUG leads in T5.2 (Social Impacts) on understanding and estimating the social consequences.</p>	
		

To be updated.	The RISKADAPT team from the Depts of Economic and Cultural Geography of RUG, Faculty of Spatial Sciences, specialises in regional and spatial economics, spatial microsimulation, social and spatial inequalities and happiness and wellbeing, disaster risk reduction, and understanding and managing the social impacts created by infrastructure .
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**Figure 6: RUG characterization table**

Bureau International du Beton Manufacture	BIBM	Belgium
 BIBM is the Federation of the European Precast Concrete Industry, representing 7.000 precast concrete plants in Europe and 10% of all the construction materials together. Members are national associations from Europe and beyond.	 BIBM is responsible for setting up a database for eco-friendly precast concrete adaptation options, including material properties and costs, and creates a link with European standardisation and policy making for the precast concrete sector.	
 Exploitation is related to enabling its member organisations to comprehensively assess their products in terms of safety, environmental/social impact and cost.	 BIBM is actively involved in standardisation committees at European level (CEN): from concrete (TC 229 for precast and TC 104 for concrete), to design (TC 250 Eurocodes/TC 250/SC 2 Concrete Eurocodes), to horizontal issues on construction products (TC 350 Sustainability assessment/TC 351 Dangerous Substances).	

**Figure 7: BIBM characterization table**

Alma Mater Studiorum – Universita di Bologna.	UNIBO	Italy
 UNIBO is representing the University of Bologna	 Provides the CC forcing regarding high winds/rain impacting tall buildings	
 To be updated.	 The RISKADAPT group of UNIBO specialises in urban meteorology/climatology, by conducting basic/applied research on the interaction between the surface and atmosphere at different spatial scales. It has experience in numerical modelling and experimental studies including applications in urban planning/management, sustainable development, energy consumption reduction.	

**Figure 8: UNIBO characterization table**

University of Stuttgart	USTUTT	Deutschland
 USTUTT is the leader of the WP4 (Multi-Hazard Vulnerability and Adaptation, Structural Resistance		

<p>USTUTT is representing the University of Stuttgart. The Institute for Acoustics and Building Physics (IABP) deals with sustainable design for the built environment..</p>	<p>Integration in Lifecycle Analyses) and also of T4.5 ( Development of the probabilistic LCA and LCC model).</p>
<p>To be updated.</p>	<p>The department GaBi within IABP is engaged and has expertise in the field of Life Cycle Engineering, LCA and LCC</p>

**Figure 9: USTUTT characterization table**





University of Birmingham	UOB	UK
<p>UOB is the School of Engineering at the University of Birmingham.</p>	<p>UOB provides structural analyses in pilot 1, while is leading in WP6 (Demonstration and Validation Activities in Pilot Cases; Third Party Use of TRISKADAPT/MIS), in T6.1 (Pilots) and in T5.8 (Identification of Data gaps and Suggestions of Ways to Overcome them) and is in charge of data gaps in connecting structural damage to construction cost/duration</p>	
<p>UOB will apply the RISKADAPT framework to diverse transport and energy assets.</p>	<p>UOB expertise includes analysis of deteriorated infrastructure to hazards, e.g. floods, exploitation of data from traditional/emerging digital technologies to reduce uncertainty in modelling, vulnerability, integration of data analytics to inform decisions in infrastructure and their ecosystems.</p>	

**Figure 10: UOB characterization table**





Univerza v Ljubljani	ULFGG	Slovenia
<p>ULFGG is the Civil Engineering department of University of Ljubljana.</p>	<p>ULFGG provides hydrological/hydraulic analyses in Pilot 1.</p>	
<p>Through its participation to the project, ULFGG is looking to exploit the results to offer its customers consulting services on (water) environment assessment, mitigation measures and circular economy (adaptation/corrosion/scouring).</p>	<p>Key expertise of ULFGG is the development of hydrological/hydraulic toolkits for Flood Hazard and Risk Assessments and the Resilience of Critical Infrastructure and Green Infrastructure/Blue-Green Cities</p>	

**Figure 11: ULFGG characterization table**

Rina Consulting S.p.A.	RINA-C	Italy
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 <p>The RINA Group is a global corporation that provides engineering and consultancy services, as well as testing, inspection and certification across the Energy, Marine, Certification, Transport &amp; Infrastructure and Industry sectors through a global network of 170 offices in 65 countries. Through its 3.700 talented professionals, RINA provides a wide range of high quality tailored solutions aiming to back up the market operators across the entire life cycle of their projects. RINA will be mainly involved in the project through its operational company RINA Consulting S.p.A.. As the engineering consultancy division of the RINA Group, RINA Consulting S.p.A. provides a wide range of services covering the whole project life cycle from feasibility and specialized technical studies to conceptual and detailed design, prototyping and testing, project management, site engineering as well as operation and maintenance management. Working alongside Clients, as a trusted technical partner, RINA Consulting S.p.A. provides a wide range of traditional and innovative services to critical industry sectors, including oil &amp; gas, power, renewables, space &amp; defence, transport &amp; infrastructure sectors.</p>	 <p>RINA-C leads in T1.5. (Innovation Management), T5.3. (Total risk assessment and management), T5.7. (Model Information System), T7.2. (Exploitation and Business Plan) and T7.3. (Standardization Activities)..</p>
 <p>RINA-C leads the exploitation efforts at the consortium level either directly or through the formation of a spin-off company (Has been the exploitation manager in EU-CIRCLE (H2020), RAGTIME (H2020), LOGIMATIC (H2020), et al.); Through RISKADAPT will provide customised risk analysis as a service to interested parties; will establish working groups with pilot users and potential new users that will continue working on and refining the results immediately after the project ends</p>	 <p>RINA-C brings expertise in risk analysis (e.g. FORESEE, RAGTIME, EU-CIRCLE, INFRASTRESS, SECUREGAS H2020 projects to name few), innovation management and standardization (led standardization activities in H2020 projects SAFETY4RAILS and RESISTAND).</p>

**Figure 12: RINA-C characterization table**



<p>T.E.C.N.I.C. Tecnic e Consulenze nell' Ingegneria Civile- Consulting Engineers S.p.A.</p> <p style="text-align: center;">TECNIC</p> <p style="text-align: right;">Italy</p>	
 <p>TECNIC Consulting Engineers SpA is a consulting company for Engineering and Architecture Services that has been working in Italy and abroad for fifty years. In Italy, TECNIC actively participates in the development of the road and motorway network and in the project of the new high-speed railway lines. Abroad it acquires contracts in Iraq, Saudi Arabia, Turkey, Romania, Venezuela, Bulgaria and Slovakia.</p>	 <p>TECNIC leads in T4.2.(Material Degradation and Structural Vulnerability of Adaptation Options for New/Existing structures), provides structural analyses in pilot 3 and offers adaptation solutions for the library in T4.1. (Library of Low Carbon Structural Adaptation Options).</p>
 <p>TECNIC will exploit RISKADAPT to offer its customers consulting services on structural assessment and adaptation</p>	

solutions. Moreover, it will offer customisation services regarding civil engineering models as part of PRISKADAPT.	TECNIC is a 50 year old civil engineering firm specialising in the design, rehabilitation and supervision of construction works, including strengthening of structures
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**Figure 13: TECNIC characterization table**

Environmental Reliability and Risk Analysis	ERRA	Greece
 <p>ERRA specializes in the area of Reliability Engineering and Safety Analysis. Since its inception ERRA has played a pivotal role in a number of reliability and safety analysis projects. ERRA has an extensive know-how of the nuclear and aeronautical sector, a deep knowledge of the applied reliability and safety analysis techniques, contribution to the latest theoretical advances in the area coupled with deep experience of software development for applications of these areas and a suite of products that covers these analysis needs. ERRA provides technical data management solutions through an innovative platform which integrates knowledge management with a highly configurable database application. ERRA solutions have been used for environmental applications, technical decision support systems and rapid prototyping. ERRA's core team consists of engineers with significant research academic profile. ERRA has a constant presence in international research programs, proceedings and scientific magazines</p>		 <p>ERRA leads in T1.7. (GDPR and Ethical Issues) and chairs the Legal/Gender/Ethics Committee and also in T1.3. (Quality Management), while provides the material degradation models and the CC forcing and structural assessments for pilot 2 in T4.2 .(Material Degradation and Structural Vulnerability of Adaptation Options for New/Existing structures) and the database on adaptation materials/components and the BIM server in WP4 (Multi-Hazard Vulnerability and Adaptation, Structural Resistance Integration in Lifecycle Analyses). It leads also in T5.6. (User Friendly Frontend Interface with Enhanced Visualization) on enhanced visualization/friendliness of PRISKADAPT, providing the User's Guide and leads in training and clustering activities. Finally, it is responsible that members of the AB are informed of the progress of the work and their advice is being taken into account, leading also in T6.2 (Third Party Use of TPRISKADAPT/MIS).</p>
 <p>ERRA provides customisation of the material degradation models as a service in the context of the RISKADAPT. RISKADAPT provides ERRA with:</p> <ul style="list-style-type: none"> <li>• further extension of its platforms for new applications</li> <li>• enhanced networking</li> <li>• raising of the profile of its capabilities in decision support systems (including participatory decisions/ eco-friendly construction adaptation decisions</li> </ul>		 <p>Key expertise and specialization of ERRA which brings to the project are in materials, structural analysis and complex information systems.</p>





**Figure 14: ERRA characterization table**

Perifereia Dytikhs Makedonias	RWM	Greece
 <p>RWM is the regional authority of Western Macedonia in Greece</p>		 <p>RWM disseminates the results and raises awareness among the local citizens and the Association of Greek Regions that participates, while provides the bridge for pilot 1 and leads in T6.1.1. (Pilot 1. Road Bridge inf Greece: Suffers from Scour and Extensive Corrosion. Subjected to Successive Flood Events Over Time and coinciding extreme temperatures).</p>







 <p>To be updated.</p>	 <p>Provides the demonstration site of Pilot 1.</p>
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**Figure 15: RWM characterization table**

Comune di Trieste	MTr	Italy
 <p>MTr is the Municipality of the City of Trieste, the local institution and administrative unit . The private bulding department is managing RISKADAPT project.</p>	 <p>MTr disseminates the results and raises awareness among the local citizens/authorities of the autonomous region of Friuli-Venezia Giulia, while facilitates and manages the relation between technical partners and the hospital and its owner, the local health Agency. MTr leads e pilot 3 T6.1.3. (Pilot 3. Tall Hospital Building in Italy Under Successive High Winds/Rain Over Time).</p>	
 <p>MTr is expecting to use data and information about CC and structural requirements for updating its building regulations Moreover, it is expecting to increase the knowledge about how climate changes can affect citizen life</p>	 <p>Provides the demonstration site of Pilot 3, involved citizens, practicionres and technics in the evaluation of thechnical requirments and disseminate the project's results. .</p>	



**Figure 16: MTr characterization table**

Diktyo Poleon gia ti Viosimi Anaptyxi kai Kyklikei Oikonomia	SCN	Greece
 <p>SCN is a cities network for sustainable development and circular economy.</p>	 <p>SCN provides the user requirements and is contributing to the calculation of the social impacts.</p>	
 <p>Through its participation to the RISKADAPT, it is expecting to train at least 10 of its members in the use of MIS.</p>	 <p>It is the largest such network in Greece with 71 municipalities as members</p>	

**Figure 17: SCN characterization table**

The University of Hong Kong	HKU	HK
 <p>HKU is representing the university of HKU.</p>	 <p>HKU develops the algorithms for glass window damage under high winds and rain and adaptation measures and leads in pilot 4.</p>	



 <p>To be updated.</p>	 <p>The RISKADAPT team of HKU has been studying urban winds in Hong Kong for the past 15 years with significant expertise in both local and meso-scale wind studies and has carried out preliminary studies of glass window damage of high-rise buildings due to wind flows</p>
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**Figure 18: HKU characterization table**

#### 4.2 Exploitation strategy at consortium level

In parallel to the evaluation of the Exploitation Strategies that each partner individually may put in place after the end of the project, given the collaborative and cooperative nature of the European Projects, potential business routes after the end of the project envisaging the participation of the whole (or part) of the consortium will also be considered.

In this case, two or more partners may foresee the development of a certain kind of agreement (e.g., Memorandum of Understanding, Commercial Agreement, Confidential Private Agreement, etc.) in order to agree on the conditions to cooperate towards new business development.

Indeed, according to the type of product or service proposed, the clients' relationships, the product manufacturing and/or service delivery costs and associated revenues shall be properly defined and agreed among partners involved. In this context and related to the Business Plan, the potential routes for business development at (whole or partial) consortium level will be investigated later. At this stage of the project, methodologies, tools and services are in the process of being finalized and almost applied at Business Case level. For this reason, within this version of the document, a preliminary overview of these were given and then later (D7.8) they will be finalized.

### 5. PROJECT RESULTS CLAIMS AND OWNERSHIP

Given the identified Project Results and the main partners expectations after the end of the project, this paragraph aims to serve as an introduction to the more detailed BFMULO analysis which will be integrated in the next version of the deliverable and will provide a more clear and concise overview of both the PR claims concerning the IPR management (in terms of Background and Foreground) and aims after the end of the project as well as defining the PR ownership. Both activities are fundamental for the next project activities as they properly define at a glance each partner's intention (BFMULO analysis) and start evaluating how partners can formalize their expectations from the project (for example by mean of joint agreement if needed). BFMULO analysis is widespread within EU projects [2-6], as it is a proven, concise, precise and efficient way of solving and defining a complex situation like the claims and ownerships within a project result.

In order to assess the better exploitation strategy for each Project Results, a BFMULO Analysis (Background, Foreground, Making, Using, Licensing, Other) will be applied to evaluate the involvement of each partner in the related results.

The BFMULO matrix will allow each partner to claim:

- B - the IPR on the background information provided for the result development

- F - the IPR on foreground information, namely on the development of the result during the project as well as providing their intention and aims after the end of the project concerning the project results, that could be:
- M – Making the result
- U – Using the result
- L – Licensing the result
- O – Other exploitation means

For each of the identified Project Results, the exploitation claims and aims will be investigated and reported in a respective table, like the one in Table 5.1, in the next version of this deliverable (D6.2.) and will be finalized in the D7. 8.



## 6. Conclusions

The present deliverable D7.4 has been developed in the framework of WP7 activities related to the “Dissemination, Communication, Exploitation, Standardisation, Contribution to Policy” of RISKADAPT project results and it is the first main outcome of T7.2 “Exploitation and Business Plan”.

Indeed, this deliverable represents the initial version of the Exploitation Strategy Plan for the RISKADAPT project consortium, thus aimed at defining a proper exploitation strategy supported by a lean approach to market outreach and reliable routes to market to make sure that RISKADAPT outcomes are tangible and sustainable once the project and the funding are over. The lack of the input in some cases will be covered in the next version of D6.2., as it was considered that the BFMULO analysis would give a more precise and closer to the partners’ expectations settling and definition of responsibilities.

The exploitation strategy, in particular, was based on the following activities:

**Definition and identification of Project Results:** totally 22 results have been identified with the related Responsible Partners and distributed according to three different categories, namely, RISKADAPT Methodologies/framework approaches, RISKADAPT Tools/Data and RISKADAPT Services.

**Preliminary characterization of the identified PRs:** for most of the PRs are provided the owner of the result, the partners involved and their level of involvement, along with the TRL and potentially interested stakeholders.

**Preliminary Exploitation Strategy,** mainly at individual level and then setting the framework for transferring at project level. Concerning the individual exploitation, at this stage of the project a general overview of each partner’s intention for project results' exploitation after its end is considered, relying on the expressed plans of every partner in the GA. At this stage of the project, methodologies, tools and services are in the process of being finalized. The RISKADAPT exploitation strategy will be enriched with a clear marketing strategy and provided in the final version of the document (D7.8) due at the end of the project.

D7.4 will be updated in D6.2. (M18) and in D7.8 (final version) at the end of the project (M36).

## References

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