Project Management Plan [M6]

MULTICARE

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D1.1 Project Management Plan [M6]

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TABLE OF CONTENTS

TABLE OF CONTENTS 3
LIST OF FIGURES 3
LIST OF TABLES 3
1. Introduction 4
1.1. MultiCare 4
1.2. Project Management Plan 6
2. Project Plan 7
2.1. Work Overview 7
2.2. Work Breakdown Structure 9
2.3. Work Dependencies 16
3. Project Implementation 21
3.1. Responsibilities 21
3.2. Timeline 30
3.3. Effort 35
3.4. Risk Mitigation 37
4. Project Reporting 40
4.1 Periodic Reporting 40
4.2 Continuous Reporting 40

LIST OF FIGURES

Figure 1. Flow Chart 8
Figure 2. Work Breakdown Structure 10
Figure 3. GANTT Chart 30
Figure 4. Rationale Deliverable Creation 42

LIST OF TABLES

Table 1. MultiCare Consortium 5
Table 2. Workstreams, Workpackages, Tasks 11
Table 3. Dependencies 16
Table 4. Workstream Responsibilities (Executive Board) 21
Table 5. Workpackage and Task Responsibilities 22
Table 6. Tasks Timeline 31
Table 7. Effort in Person-Months 35
Table 8. Risk Mitigation 37
Table 9. Periodic Reporting 40
Table 10. Milestones 41
Table 11. Timeline Deliverable Production (Quality Control) 43

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1. Introduction

1.1. MultiCare

The built environment is ill-prepared for more frequent and increasingly intense climate-related extreme events. The current building stock is particularly vulnerable because it has limited or no capacity to adapt and recover from extreme events thereby leading to building failures that cause severe socio-economic losses and adversely affecting the health and wellbeing of people. Recent scientific and technological advances in the construction industry provide timely solutions for improving the resilience for specific single hazards (e.g. flood hazard or seismic hazard), but they are often not cost effective, rarely eco-friendly and nearly never address the multiple hazards present in many locations. This is hardly surprising because there is neither a clearly defined framework for quantifying the whole-life socio-economic-environmental impacts of extreme natural events nor tools for assessing the holistic climate resilience of buildings. Consequently, it is currently very challenging to develop/select optimal solutions for real-world multi-hazard scenarios.

MULTICARE will address this challenge directly by developing new multi-criteria decision-support frameworks and providing plug & play technological and digital solutions for improving the resilience of the built environment in a cost-effective, reliable and sustainable manner. The technological solutions consist of multi-functional low-carbon resilient technologies embedded in modular and prefabricated construction for the next generation of high performance and smart buildings, characterized by enhanced safety, energy efficiency, environmental-sustainability, improved quality of life, circularity, and scalability for a broad range of natural events and end-user. The plug & play technologies will be applied to either new multi-story buildings or existing structures by means of low-invasive external interventions. The digital solutions consist of a suite of multi-disciplinary digital services and tools for performing multi-hazard resilience assessment, design, operation and management across multiple scales (material, component, building, neighborhood/city). The new digital tools will enable stakeholders to make informed decisions in the selection of materials/solutions, including for heritage buildings, and support resilient supply chains. The effectiveness of the MULTICARE solutions will be demonstrated through large-scale pilots (3 buildings, 4 neighborhoods/district) in three different European countries carefully selected for their diverse local environmental, social and economic conditions (Italy, Netherlands, Romania). Banks and institutional investors will be engaged to better understand the financial risk reduction value of resilience and update existing and future “green finance” mechanisms that will help to leverage the project results. A user-center, inclusive and participatory approach will be consistently implemented throughout the project to engage citizens and extend the durability of MULTICARE impact.

To achieve these ambitious goals, MULTICARE brings together a unique interdisciplinary Consortium of 21 partners (**Table 1**) from 6 different EU countries with strong R&D and practical expertise, who are either established leaders in their sector or agile SMEs in emerging fields. Altogether the Consortium members span across the whole technical and

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value chain required for developing and implementing solutions in terms of design, digitization, manufacturing, construction and monitoring of resilient and sustainable buildings. The Consortium also includes partners with experience in social sciences, user engagement, and training to ensure the success and widespread application of new technologies in local communities. The Consortium will also support clustering activities with other relevant research projects to share knowledge and raise public awareness of building resilience. An international outreach and cooperation strategy will also be implemented to tackle the project challenges.

Table 1. MultiCare Consortium

Number	Role	Short Name	Legal Name	Country
1	CO	TU Delft	TECHNISCHE UNIVERSITEIT DELFT	NL
2	BEN	PFE	PRIEDEMANN FASSADENBERATUNG GMBH	DE
3	BEN	IES R&D	IES R&D	IE
4	BEN	INCDFP	INSTITUTUL NATIONAL DE CERCETARE-DEZVOLTARE PENTRU FIZICA PAMANTULUI	RO
5	BEN	UNIROMA1	UNIVERSITA DEGLI STUDI DI ROMA LA SAPIENZA	IT
6	BEN	XLD	X-LAM DOLOMITI SRL	IT
7	BEN	STRESS	SVILUPPO TECNOLOGIE E RICERCA PER L'EDILIZIA SISMICAMENTE SICURA ED ECOSOSTENIBILE SCARL	IT
7.1	AE	UNINA	UNIVERSITA DEGLI STUDI DI NAPOLI FEDERICO II	IT
8	BEN	AMS Institute	STICHTING AMSTERDAM INSTITUTE FORADVANCED METROPOLITAN SOLUTIONS(AMS)	NL
9	BEN	PMB	MUNICIPIUL BUCURESTI	RO
10	BEN	ASM	ASM - CENTRUM BADAN I ANALIZ RYNKUSPOLKA Z OGRANICZONA ODPOWIEDZIALNOSCIA	PL
11	BEN	RoGBC	ASOCIATIA ROMANIA GREEN BUILDING COUNCIL	RO
12	BEN	RINA-C	RINA CONSULTING SPA	IT
13	BEN	UTBV	UNIVERSITATEA TRANSILVANIA DIN BRASOV	RO
14	BEN	ACER	AGENZIA CAMPANA PER L EDILIZIA RESIDENZIALE	IT
15	BEN	Boom	BOOM BUILDS B.V.	NL
16	BEN	OMRT	OMRT BV	NL
17	BEN	ROTHO BLAAS SRL	ROTHO BLAAS SRL	IT
18	BEN	ARUP	ARUP BV	NL
19	BEN	Tecuci	MUNICIPIUL TECUCI	RO
20	BEN	Hölscher	DIPL.-ING. HPLSCHER GMBH & CO.KG	DE

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1.2. Project Management Plan

This Project Management Plan (PM-plan) outlines the project structure and the procedures to implement the MultiCare project. It contains the Work Breakdown Structure (WBS) and the Gantt chart. Included are a schedule per task, related deliverables, responsible partners and dependencies on other tasks.

The document starts with an overview of the project that introduces the different workstreams and work packages and shows how these relate. The flow-chart (**Figure 1**) illustrates this. The work breakdown structure (**Figure 2**) gives the hierarchical and incremental breakdown of work into tasks. Since the structure is quite extensive we have added (**Table 2**) for detail. **Table 3** lists the dependencies of each task on other tasks and workpackages.

In the following chapter we shift to the actual implementation of the work. This includes the specification of responsibilities, timelines and work effort. The GANTT – chart (**Figure 3**) adds the element of time and gives the overall planning of the project including the time schedule per task and dependencies on other tasks. Also here we have added a table (**Table 6**) for detail. The chapter ends with a summary of the person-month effort per workpackage.

The Project Management Plan ends with the reporting obligations towards the European Commission.

This plan is a living document that will be updated throughout the project duration. Next iterations will be delivered in M18 and M30.

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2. Project Plan

2.1. Work Overview

MULTICARE developments start in WP4 (TUD), dedicated to the identification of the performance requirements and criteria of the technological and digital solutions, by considering an holistic perspective including buildings and users. An initial integrated framework will be defined for assessing the effectiveness of the MULTICARE solutions and guiding in the project development phases. While defining the framework, the development of both digital and technological innovations start at multiple scales (material, component, building, urban) and life-cycle phases of the built environment: 1) resilient-based framework and digital services for more-informed and sustainable designs: WS3 – WP5 (PFE), WP6 (TUD), WP7 (IES); interoperable services for operation monitoring, digital twinning and rapid response to extreme events: WS4 – WP8 (PFE), WP9 (IES) -, WP10 (INFP) -; prototyping of integrated resilient modules for new construction and low-invasive retrofitting with low embodied energy: WS5 – WP11 (HOSCH), WP12 (SUR), WP13 (XLD). The proposed solutions will be implemented in large-scale demonstrators (WS6), namely three real-life buildings (Acerra WPs 14-15, Amsterdam WPs 16-17, Bucharest WPs 18-19) where the MULTICARE low-carbon resilient technologies and monitoring systems will be installed, and four large urban areas (in the same sites + Tecuci WPs 20-21) where the MULTICARE digital platforms for resilience assessment and warning/rapid response will be applied. Feedback and learnings from the demonstrator buildings/sites will be considered for improving the solutions developed in WS3, WS4 and WS5 (WP22). An impact assessment involving techno economic and socio-environmental analyses will be finally developed for quantifying the effectiveness of the implemented solutions (WP23). During the overall project, WS8 (WPs 24, 25, 26) will set up and coordinate comprehensive strategies for capacity building, communication and dissemination, replication and exploitation in order to maximize the impact and future scalability of the MULTICARE solutions as well as their promotion among relevant stakeholders. Project coordination and management are allocated in WS1 (WP1-3), led by TU Delft.

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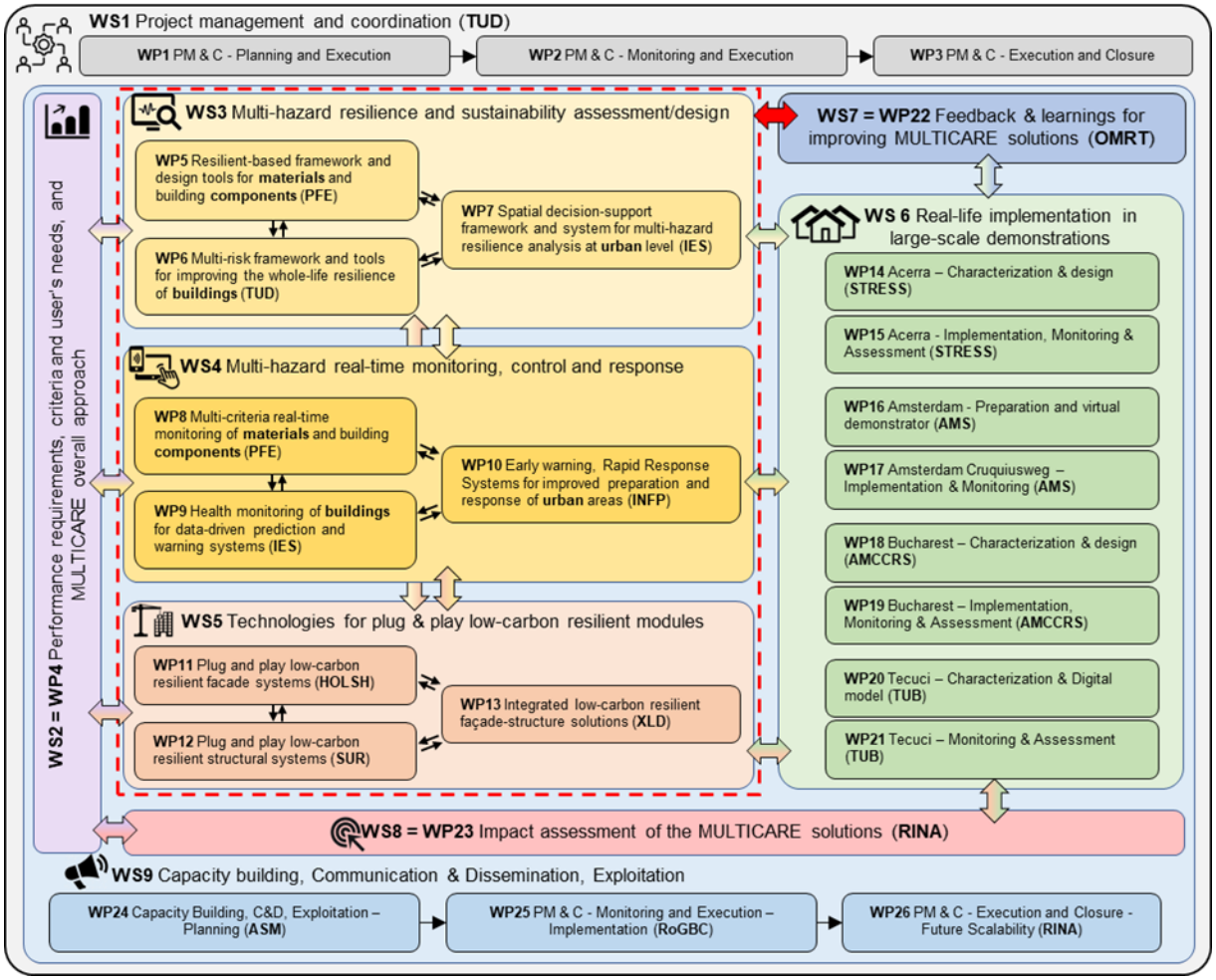

Figure 1. Flow Chart

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2.2. Work Breakdown Structure

The Work Breakdown Structure (WBS) of MultiCare breaks down the project execution into manageable components in terms of size, duration, effort and responsibility. In a hierarchical and incremental tree structure the subdivisions of effort are shown required to achieve the project's objectives. All steps necessary to achieve the objectives are included. The work breakdown structure provides a shared framework for the development of overall planning and control and it is the basis for dividing work into definable increments. The work breakdown structure permits the summing of subordinate costs for tasks into their successively higher level "parent" tasks.

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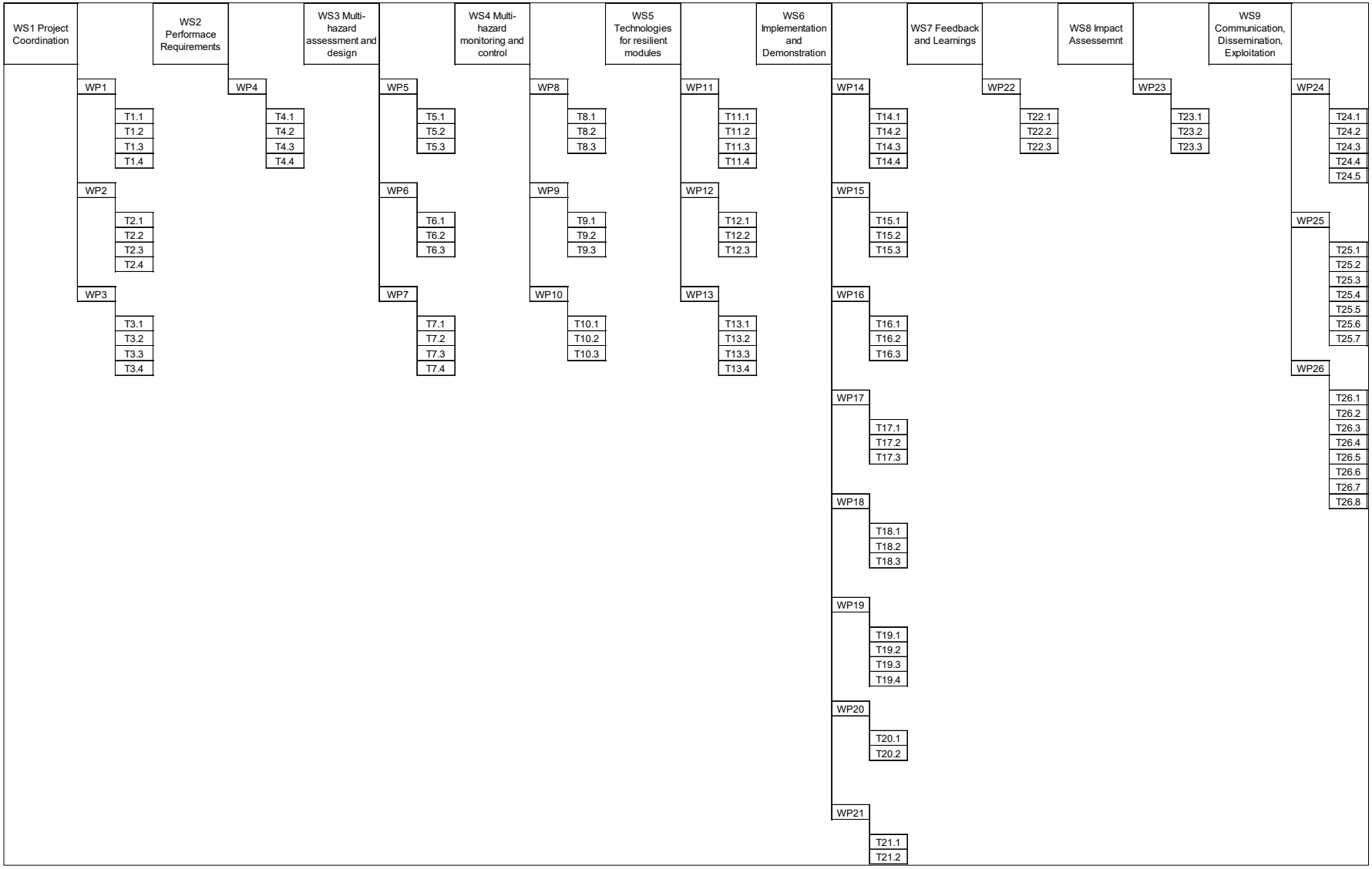

Figure 2. Work Breakdown Structure

Table 2. Workstreams, Workpackages, Tasks

WS	Description	WP	Description	Task	Description
WS 1	Project management and coordination	WP 1	Project management and coordination - Planning and Execution	T1.1	Project coordination
				T1.2	Scientific coordination
				T1.3	Financial management
				T1.4	Data management
		WP 2	Project management and coordination - Monitoring and Execution	T2.1	Project coordination
				T2.2	Scientific coordination
				T2.3	Financial management
				T2.4	Data management
		WP 3	Project management and coordination - Execution and Closure	T3.1	Project coordination
				T3.2	Scientific coordination
				T3.3	Financial management
				T3.4	Data management
WS 2	Performance requirements, user needs, and MULTICARE fundamental multi-hazard approach	WP 4	Performance requirements, criteria and user's needs, and MULTICARE overall approach	T4.1	Performance requirements and KPIs for the physical solutions
				T4.2	Performance requirements and KPIs for the digital solutions
				T4.3	Definition of the assessment framework for the effectiveness of the MULTICARE solutions
				T4.4	Overall concept of the MULTICARE solutions
WS 3	Multi-hazard resilience and sustainability assessment/design	WP 5	Resilient-based framework and design tools for materials and building components	T5.1	Definition of resilience indicators for materials and components
				T5.2	Multi-hazard resilience-based framework at sub-system level
				T5.3	Toolbox of materials, connections and systems for resilient facades and structures
		WP 6	Multi-risk framework and support tools for improving the whole-life resilience of buildings	T6.1	Resilience metrics and rating systems for buildings
				T6.2	Multi-risk framework and algorithms for socio-economic-environmental loss estimation
				T6.3	Plug-ins for supporting multi-criteria building simulation and resilience design

		WP 7	Spatial decision-support framework and system for multi hazard resilience analysis at urban level	T7.1	Hazard mapping and urban data identification for baseline model
				T7.2	Material to urban level multi hazards resilience improvement framework
				T7.3	Energy network resilience improvement framework
				T7.4	Spatial Decision Support Tool development and testing, including User Interface
WS 4	Multi-hazard real-time monitoring, control and response	WP 8	Multi-criteria real-time monitoring and management of materials and building components	T8.1	Identification of requirements of the monitoring system and relevant information gathered by it
				T8.2	Development of the data acquisition and collection architecture on a schematic level
				T8.3	Design seamless technical integration of components into the façade and structural elements
		WP 9	Health monitoring of buildings for data-driven prediction and warning systems	T9.1	Real time data management framework
				T9.2	Warning systems for natural events: earthquakes, floods and climate extremes
				T9.3	Heat waves predictive warning services for building energy demand and IEQ optimization
		WP 10	Early Warning and Rapid Response Systems for improving multi-hazard preparedness and responsiveness of cities and regions	T10.1	Rapid earthquake loss estimation
				T10.2	Development of flash-flood warning system at urban level
				T10.3	Time-dependent estimation of travel times and isolated areas
WS 5	Technologies for plug & play low-	WP 11	Plug and play low-carbon resilient facade systems	T11.1	Selection of materials and design of multi-layered

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	carbon resilient modules				modular panels according to the Task 3.1
				T11.2	Design of a low-carbon resilient modular façade panel/system with reversible connections
				T11.3	Prototyping and testing
				T11.4	Development of guidance on how to disassemble and maintain the proposed system
		WP 12	Plug and play low-carbon resilient structural systems	T12.1	Multi-hazard design of low-carbon timber structural systems
				T12.2	Prototyping and testing of structural members and connection details
				T12.3	Development of a technical handbook for resilient structural systems
		WP 13	Integrated low-carbon resilient façade-structure solutions	T13.1	Definition of the exoskeleton system and its connections to the as-built structure
				T13.2	Design of the foundation system for the exoskeleton intervention
				T13.3	Prototyping and testing of exoskeleton modules
				T13.4	End-user oriented guidelines for the exoskeleton systems
WS6	Real-life implementation in large-scale demonstrations	WP 14	Acerra - Characterization & design	T14.1	Data acquisition for baseline characterization
				T14.2	Case study modelling and initial intervention design
				T14.3	Lab scale validation – seismic testing
				T14.4	Final intervention design
		WP 15	Acerra – Implementation, Monitoring & Assessment	T15.1	Implementation of the exoskeleton intervention
				T15.2	Monitoring of the technologies
				T15.3	Replicability of the solutions through impact analysis at urban level

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		WP 16	Amsterdam – Preparation and virtual demonstrator	T16.1	Data collection, baseline assessment and definitions (new built & renovation)
				T16.2	Virtual intervention modelling (new built & renovation scenario)
				T16.3	Intervention design (new built scenario)
		WP 17	Amsterdam Cruquiusweg – Implementation & Monitoring	T17.1	Technology implementation (new built)
				T17.2	Technology monitoring (new built)
				T17.3	Impact analysis at urban level
		WP 18	Bucharest - Characterization & design	T18.1	Data acquisition for baseline characterization
				T18.2	Case study modelling and intervention design
				T18.3	Construction project
		WP 19	Bucharest – Implementation, Monitoring & Assessment	T19.1	Implementation of the exoskeleton intervention
				T19.2	Post-intervention monitoring
				T19.3	Replicability of the solutions through impact analysis at urban level
				T19.4	Implementation of building-specific early warning system and rapid response procedures
		WP 20	Tecuci – Characterization & Digital model	T20.1	Data collection for area of interest
				T20.2	Digital representation of exposed elements and identification of the points that need to be monitored
		WP 21	Tecuci – Monitoring & Assessment	T21.1	Multidisciplinary monitoring of the parameters specific to each type of risk
				T21.2	Implementation of tool for urban analysis
WS 7	Feedback and lessons learnt from demos for improving	WP 22	Feedback and learnings from demos for improving MULTICARE solutions	T22.1	Incorporating solutions library in parametric design
				T22.2	Calibrating assessment model

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	MULTICARE solutions			T22.3	Improving the overall MULTICARE solutions
WS 8	Impact assessment of the MULTICARE solutions	WP 23	Impact assessment of the MULTICARE solutions	T23.1	MULTICARE Demonstrators Assessment - Baseline characterization
				T23.2	MULTICARE Demonstrators Assessment - Techno-economic assessment
				T23.3	MULTICARE Demonstrators Assessment - Social and Environmental assessment
WS 9	Capacity building, Communication & Dissemination, Exploitation	WP 24	Capacity building, Communication & Dissemination, Exploitation - Planning	T24.1	Create Dissemination & communication plan and activities
				T24.2	Creation of internal contents and tools
				T24.3	Internal capacity building
				T24.4	Planning of replication
				T24.5	Definition of Exploitation and IPR management strategy
		WP 25	Capacity building, Communication & Dissemination, Exploitation - Implementation	T25.1	Begin Communication activities
				T25.2	Begin Dissemination activities
				T25.3	Capacity Building/Training content creation and delivery
				T25.4	MULTICARE Living Lab
				T25.5	Financial mechanisms and tools
				T25.6	Preliminary exploitation plan
				T25.7	Business case: Business model and business plan
		WP 26	Capacity building, Communication & Dissemination, Exploitation - Future scalability	T26.1	Financial schemes application at European level
				T26.2	Final exploitation plan
				T26.3	Techno-Economic Roadmap towards TRL9
				T26.4	Cooperation and knowledge exchange with relevant projects and initiatives

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				T26.5	Continuation of Communication activities
				T26.6	Continuation of Dissemination activities
				T26.7	Implementation of MULTICARE Living Lab
				T26.8	Standardization of MULTICARE technology packages

2.3. Work Dependencies

Table 3. Dependencies

WP	Description	Task	Description	Dependencies on other Workpackages / Tasks
WP 1	Project management and coordination - Planning and Execution	T1.1	Project coordination	**All Workpackages**
		T1.2	Scientific coordination	**All Workpackages**
		T1.3	Financial management	**All Workpackages**
		T1.4	Data management	**All Workpackages**
WP 2	Project management and coordination - Monitoring and Execution	T2.1	Project coordination	**T1.1**
		T2.2	Scientific coordination	**T1.2**
		T2.3	Financial management	**T1.3**
		T2.4	Data management	**T1.4**
WP 3	Project management and coordination - Execution and Closure	T3.1	Project coordination	**T2.1**
		T3.2	Scientific coordination	**T2.2**
		T3.3	Financial management	**T2.3**
		T3.4	Data management	**T2.4**
WP 4	Performance requirements, criteria and user's needs, and MULTICARE overall approach	T4.1	Performance requirements and KPIs for the physical solutions	**WP11, WP12, WP13**
		T4.2	Performance requirements and KPIs for the digital solutions	**WP5, WP6, WP7, WP8, WP9, WP10**
		T4.3	Definition of the assessment framework for the effectiveness of the MULTICARE solutions	**WP23**
		T4.4	Overall concept of the MULTICARE solutions	**WP5, WP6, WP7, WP8, WP9, WP10, WP11, WP12, WP13**
WP 5	Resilient-based framework and design tools for materials and	T5.1	Definition of resilience indicators for materials and components	**WP4, T6.1, T11.1, T8.1**
		T5.2	Multi-hazard resilience-based framework at sub-system level	**WP4, T6.2, T11.2**

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	building components	T5.3	Toolbox of materials, connections and systems for resilient facades and structures	**WP4, T5.1, T11.1, T11.2, T11.4**
WP 6	Multi-risk framework and support tools for improving the whole-life resilience of buildings	T6.1	Resilience metrics and rating systems for buildings	**WP4, T5.1, T8.1**
		T6.2	Multi-risk framework and algorithms for socio-economic-environmental loss estimation	**WP4, T5.2, T7.1, T7.2**
		T6.3	Plug-ins for supporting multi-criteria building simulation and resilience design	**WP4, T5.3, T8.1**
WP 7	Spatial decision-support framework and system for multi hazard resilience analysis at urban level	T7.1	Hazard mapping and urban data identification for baseline model	**WP4, T6.2**
		T7.2	Material to urban level multi hazards resilience improvement framework	**WP4, T5.2, T6.2**
		T7.3	Energy network resilience improvement framework	**WP4, T7.2**
		T7.4	Spatial Decision Support Tool development and testing, including User Interface	**WP4, T7.1, T7.2, T7.3**
WP 8	Multi-criteria real-time monitoring and management of materials and building components	T8.1	Identification of requirements of the monitoring system and relevant information gathered by it	**WP4, T5.1, T5.2**
		T8.2	Development of the data acquisition and collection architecture on a schematic level	**WP4, T8.1**
		T8.3	Design seamless technical integration of components into the façade and structural elements	**WP4, T8.1, T8.2**
WP 9	Health monitoring of buildings for data-driven prediction and warning systems	T9.1	Real time data management framework	**WP4, WP8, T6.1**
		T9.2	Warning systems for natural events: earthquakes, floods and climate extremes	**WP4, WP7, T9.1**
		T9.3	Heat waves predictive warning services for building energy demand and IEQ optimization	**WP4, WP7, T9.1, T6.3**
WP 10	Early Warning and Rapid Response Systems for improving multi-hazard	T10.1	Rapid earthquake loss estimation	**WP4, T9.2**
		T10.2	Development of flash-flood warning system at urban level	**WP4, T9.1, T9.2, T7.4**
		T10.3	Time-dependent estimation of travel times and isolated areas	**WP4, T10.1, T10.2, T7.4**

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	preparedness and responsiveness of cities and regions			
WP 11	Plug and play low-carbon resilient facade systems	T11.1	Selection of materials and design of multi-layered modular panels according to the Task 5.1	**WP4, T5.1**
		T11.2	Design of a low-carbon resilient modular façade panel/system with reversible connections	**WP4, T11.1, T5.1, T5.2**
		T11.3	Prototyping and testing	**WP4, T11.2**
		T11.4	Development of guidance on how to disassemble and maintain the proposed system	**WP4, T11.1, T11.2, T11.3**
WP 12	Plug and play low-carbon resilient structural systems	T12.1	Multi-hazard design of low-carbon timber structural systems	**WP4, T5.1**
		T12.2	Prototyping and testing of structural members and connection details	**WP4, T12.1**
		T12.3	Development of a technical handbook for resilient structural systems	**WP4, T12.1, T12.2**
WP 13	Integrated low-carbon resilient façade-structure solutions	T13.1	Definition of the exoskeleton system and its connections to the as-built structure	**WP4, WP11, WP12**
		T13.2	Design of the foundation system for the exoskeleton intervention	**WP4, WP12, T13.1**
		T13.3	Prototyping and testing of exoskeleton modules	**WP4, T13.1**
		T13.4	End-user oriented guidelines for the exoskeleton systems	**WP4, T13.1, T13.2, T13.3**
WP 14	Acerra - Characterization & design	T14.1	Data acquisition for baseline characterization	**T4.3, T7.1**
		T14.2	Case study modelling and initial intervention design	**T14.1, WP5, WP6, WP13**
		T14.3	Lab scale validation – seismic testing	**T14.2, WP13**
		T14.4	Final intervention design	**T14.2, T14.3**
WP 15	Acerra – Implementation, Monitoring & Assessment	T15.1	Implementation of the exoskeleton intervention	**T15.1**
		T15.2	Monitoring of the technologies	**WP8, WP9**
		T15.3	Replicability of the solutions through impact analysis at urban level	**WP22, WP7**

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WP 16	Amsterdam – Preparation and virtual demonstrator	T16.1	Data collection, baseline assessment and definitions (new built & renovation)	**T4.3, T7.1**
		T16.2	Virtual intervention modelling (new built & renovation scenario)	**T6.3**
		T16.3	Intervention design (new built scenario)	**T16.1, T16.2, WP5, WP6, WP11**
WP 17	Amsterdam Cruquiusweg – Implementation & Monitoring	T17.1	Technology implementation (new built)	**T16.3, WP11**
		T17.2	Technology monitoring (new built)	**WP8, WP9**
		T17.3	Impact analysis at urban level	**WP22, WP7**
WP 18	Bucharest - Characterization & design	T18.1	Data acquisition for baseline characterization	**T4.3, T7.1**
		T18.2	Case study modelling and intervention design	**T18.1, WP5, WP6, WP13**
		T18.3	Construction project	**T18.2, WP13**
WP 19	Bucharest – Implementation, Monitoring & Assessment	T19.1	Implementation of the exoskeleton intervention	**T18.2, T18.3**
		T19.2	Post-intervention monitoring	**T19.1, WP8, WP9**
		T19.3	Replicability of the solutions through impact analysis at urban level	**WP22, WP7**
		T19.4	Implementation of building-specific early warning system and rapid response procedures	**T18.1, WP10**
WP 20	Tecuci – Characterization & Digital model	T20.1	Data collection for area of interest	**T4.3, T7.1**
		T20.2	Digital representation of exposed elements and identification of the points that need to be monitored	**WP22, T20.1**
WP 21	Tecuci – Monitoring & Assessment	T21.1	Multidisciplinary monitoring of the parameters specific to each type of risk	**WP22**
		T21.2	Implementation of tool for urban analysis	**WP7**
WP 22	Feedback and learnings from demos for improving MULTICARE solutions	T22.1	Incorporating solutions library in parametric design	**T6.3, WP14, WP15, WP16, WP17, WP18, WP19**
		T22.2	Calibrating assessment model	**T22.1**
		T22.3	Improving the overall MULTICARE solutions	**T6.3**
WP 23	Impact assessment of	T23.1	MULTICARE Demonstrators Assessment – Baseline characterization	**T4.3, WP14, WP15, WP16, WP17, WP18, WP19, WP20, WP21**

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	the MULTICARE solutions	T23.2	MULTICARE Demonstrators Assessment - Techno-economic assessment	**T4.3, T23.1, WP14, WP15, WP16, WP17, WP18, WP19, WP20, WP21**
		T23.3	MULTICARE Demonstrators Assessment - Social and Environmental assessment	**T4.3, T23.1, WP14, WP15, WP16, WP17, WP18, WP19, WP20, WP21**
WP 24	Capacity building, Communication & Dissemination, Exploitation - Planning	T24.1	Create Dissemination & communication plan and activities	**-**
		T24.2	Creation of internal contents and tools	**-**
		T24.3	Internal capacity building	**-**
		T24.4	Planning of replication	**WP4**
		T24.5	Definition of Exploitation and IPR management strategy	**-**
WP 25	Capacity building, Communication & Dissemination, Exploitation - Implementation	T25.1	Begin Communication activities	**T24.1**
		T25.2	Begin Dissemination activities	**T24.1**
		T25.3	Capacity Building/Training content creation and delivery	**T24.2**
		T25.4	MULTICARE Living Lab	**WP14, WP16, WP18, WP20, WP4**
		T25.5	Financial mechanisms and tools	**T24.4**
		T25.6	Preliminary exploitation plan	**T24.5**
		T25.7	Business case: Business model and business plan	**T25.6, T24.5**
WP 26	Capacity building, Communication & Dissemination, Exploitation - Future scalability	T26.1	Financial schemes application at European level	**T25.5**
		T26.2	Final exploitation plan	**T25.6, T25.7**
		T26.3	Techno-Economic Roadmap towards TRL9	**T26.2, T25.7**
		T26.4	Cooperation and knowledge exchange with relevant projects and initiatives	**T25.1, T25.2**
		T26.5	Continuation of Communication activities	**T25.1**
		T26.6	Continuation of Dissemination activities	**T25.2**
		T26.7	Implementation of MULTICARE Living Lab	**T25.4**
		T26.8	Standardization of MULTICARE technology packages	**WP11, WP12, WP13, WP4**

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3. Project Implementation

This chapter defines the responsibilities and timelines and effort of the executing the actual work.

Project Implementation is a concerted effort of all consortium members. The consortium has structured itself in three governance bodies:
– The **General Assembly** (GA) as the ultimate decision-making body of the consortium. It consists of representatives of each consortium partner.
– The **Executive Board** (EB) as the supervisory body for the execution of the Project, which shall report to and be accountable to the General Assembly. The Executive Board shall monitor the effective and efficient implementation of the Project. In addition, the Executive Board shall collect information at least every 6 months on the progress of the Project, examine that information to assess the compliance of the Project with the Consortium Plan and, if necessary, propose modifications of the Consortium Plan to the General Assembly. The Executive Board consists of the Workstream-leads.
– The **Coordinator** (CO) as the legal entity acting as the intermediary between the Parties and the Granting Authority. The Coordinator shall, in addition to its responsibilities as a Party, perform the tasks assigned to it as described in the Grant Agreement and the Consortium Agreement. TU Delft is the Coordinator for MultiCare.

The General Assembly meets every semester offline. The Executive Board meets every month, at least once per quarter. As such work progress on all tasks and the engagement of all consortium members is ensured.

3.1. Responsibilities

Table 4. Workstream Responsibilities (Executive Board)

WS	Description	Workstream Lead
WS 1	Project management and coordination	TU Delft
WS 2	Performance requirements, user needs, and MULTICARE fundamental multi-hazard approach	TU Delft
WS 3	Multi-hazard resilience and sustainability assessment/design	TU Delft
WS 4	Multi-hazard real-time monitoring, control and response	IES
WS 5	Technologies for plug & play low-carbon resilient modules	UNIROMA1
WS6	Real-life implementation in large-scale demonstrations - Acerra	STRESS
	Real-life implementation in large-scale demonstrations - Amsterdam	AMS Institute
	Real-life implementation in large-scale demonstrations - Bucharest	PMB
	Real-life implementation in large-scale demonstrations - Tecuci	UTBV
WS 7	Feedback and lessons learnt from demos for improving MULTICARE solutions	OMRT
WS 8	Impact assessment of the MULTICARE solutions	RINA-C
WS 9	Capacity building, Communication & Dissemination, Exploitation	ASM

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Table 5. Workpackage and Task Responsibilities

WP	Description	Workpackage Lead	Task	Description	Task Lead	Contributors
1	Project management and coordination - Planning and Execution	**TUD**	T1.1	Project coordination	**TUD**	All
			T1.2	Scientific coordination	**TUD**	All
			T1.3	Financial management	**TUD**	All
			T1.4	Data management	**TUD**	All
2	Project management and coordination - Monitoring and Execution	**TUD**	T2.1	Project coordination	**TUD**	All
			T2.2	Scientific coordination	**TUD**	All
			T2.3	Financial management	**TUD**	All
			T2.4	Data management	**TUD**	All
3	Project management and coordination - Execution and Closure	**TUD**	T3.1	Project coordination	**TUD**	All
			T3.2	Scientific coordination	**TUD**	All
			T3.3	Financial management	**TUD**	All
			T3.4	Data management	**TUD**	All
4	Performance requirements, criteria and user's needs, and MULTICARE overall approach	**TUD**	T4.1	Performance requirements and KPIs for the physical solutions	**TUD**	PFE, SUR, XLD, STRESS, AMCCRS, ASM, RoGBC, RINA-C, ACER, BOOM, RTB, HOLSCH
			T4.2	Performance requirements and KPIs for the digital solutions	**TUD**	PFE, IES, INFP, SUR, AMS, ASM, RoGBC, RINA-C, TUB, OMRT, ARUP
			T4.3	Definition of the assessment framework for the effectiveness of the MULTICARE solutions	**RINA-C**	All
			T4.4	Overall concept of the MULTICARE solutions	**TUD**	All
5	Resilient-based framework and design tools for	**PFE**	T5.1	Definition of resilience indicators for materials and components	**TUD**	PFE, SUR, XLD, AMS, BOOM, RTB, ARUP, HOLSCH

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	materials and building components		T5.2	Multi-hazard resilience-based framework at sub-system level	**PFE**	TUD, SUR, XLD, AMS, BOOM, OMRT, RTB, ARUP, HOLSCH
			T5.3	Toolbox of materials, connections and systems for resilient facades and structures	**OMRT**	TUD, PFE, AMS, BOOM, HOLSCH
6	Multi-risk framework and support tools for improving the whole-life resilience of buildings	**TUD**	T6.1	Resilience metrics and rating systems for buildings	**TUD**	SUR, AMS, TUB, ARUP
			T6.2	Multi-risk framework and algorithms for socio-economic-environmental loss estimation	**TUD**	SUR, AMS, TUB, ARUP
			T6.3	Plug-ins for supporting multi-criteria building simulation and resilience design	**AMS**	TUD, SUR, OMRT
7	Spatial decision-support framework and system for multi hazard resilience analysis at urban level	**IES**	T7.1	Hazard mapping and urban data identification for baseline model	**IES**	TUD, INFP, STRESS, AMS, AMCCRS, TUB
			T7.2	Material to urban level multi hazards resilience improvement framework	**TUD**	TUB, SUR, AMS, OMRT, ARUP
			T7.3	Energy network resilience improvement framework	**IES**	TUD, SUR, TUB, ARUP
			T7.4	Spatial Decision Support Tool development and testing, including User Interface	**IES**	TUD, STRESS, AMS, AMCCRS, TUB
8	Multi-criteria real-time monitoring and management of materials and building components	**PFE**	T8.1	Identification of requirements of the monitoring system and relevant information gathered by it	**PFE**	TUD, XLD, RINA-C, ARUP, HOLSCH
			T8.2	Development of the data acquisition	**PFE**	TUD, RINA-C, HOLSCH

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				and collection architecture on a schematic level		
			T8.3	Design seamless technical integration of components into the façade and structural elements	**PFE**	TUD, RINA-C, XLD, HOLSCH
9	Health monitoring of buildings for data-driven prediction and warning systems	**IES**	T9.1	Real time data management framework	**TUD**	PFE, IES, INFP, RINA-C, TUB, ARUP
			T9.2	Warning systems for natural events: earthquakes, floods and climate extremes	**INFP**	TUD, TUB
			T9.3	Heat waves predictive warning services for building energy demand and IEQ optimization	**IES**	RINA-C
10	Early Warning and Rapid Response Systems for improving multi-hazard preparedness and responsiveness of cities and regions	**INFP**	T10.1	Rapid earthquake loss estimation	**INFP**	TUD, ARUP
			T10.2	Development of flash-flood warning system at urban level	**TUB**	INFP, TUD
			T10.3	Time-dependent estimation of travel times and isolated areas	**INFP**	TUD
11	Plug and play low-carbon resilient facade systems	**HOLSCH**	T11.1	Selection of materials and design of multi-layered modular panels according to the Task 3.1	**PFE**	TUD, BOOM, XLD, HOLSCH, ARUP
			T11.2	Design of a low-carbon resilient modular façade panel/system with reversible connections	**PFE**	TUD, HOLSCH, XLD, RTB

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			T11.3	Prototyping and testing	**HOLSCH**	TUD, PFE, RINA-C
			T11.4	Development of guidance on how to disassemble and maintain the proposed system	**PFE**	TUD, XLD, RTB
12	Plug and play low-carbon resilient structural systems	**SUR**	T12.1	Multi-hazard design of low-carbon timber structural systems	**SUR**	XLD, STRESS, UNINA, TUB, RTB, ARUP
			T12.2	Prototyping and testing of structural members and connection details	**XLD**	SUR, UNINA, RINA-C, RTB
			T12.3	Development of a technical handbook for resilient structural systems	**SUR**	XLD, STRESS, UNINA, TUB, RTB
13	Integrated low-carbon resilient façade-structure solutions	**XLD**	T13.1	Definition of the exoskeleton system and its connections to the as-built structure	**SUR**	TUD, PFE, XLD, STRESS, UNINA, RTB, HOLSCH
			T13.2	Design of the foundation system for the exoskeleton intervention	**SUR**	XLD, UNINA, RTB
			T13.3	Prototyping and testing of exoskeleton modules	**XLD**	TUD, PFE, SUR, RINA-C, RTB, HOLSCH
			T13.4	End-user oriented guidelines for the exoskeleton systems	**SUR**	TUD, STRESS
14	Acerra - Characterization & design	**STRESS**	T14.1	Data acquisition for baseline characterization	**STRESS**	IES, SUR, UNINA, RINA-C, ACER
			T14.2	Case study modelling and initial intervention design	**UNINA**	SUR, STRESS, RINA-C, ACER, ARUP
			T14.3	Lab scale validation – seismic testing	**UNINA**	PFE, SUR, XLD, STRESS, ACER, HOLSCH
			T14.4	Final intervention design	**UNINA**	PFE, SUR, STRESS,

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						RINA-C, ACER, ARUP, HOLSCH
15	Acerra – Implementation, Monitoring & Assessment	**STRESS**	T15.1	Implementation of the exoskeleton intervention	**XLD**	PFE, XLD, STRESS, UNINA, ACER, RTB, HOLSCH
			T15.2	Monitoring of the technologies	**RINA-C**	STRESS, UNINA, ACER
			T15.3	Replicability of the solutions through impact analysis at urban level	**IES**	STRESS, RINA-C, ACER
16	Amsterdam – Preparation and virtual demonstrator	**AMS**	T16.1	Data collection, baseline assessment and definitions (new built & renovation)	**AMS**	TUD, IES, BOOM, OMRT, ARUP
			T16.2	Virtual intervention modelling (new built & renovation scenario)	**OMRT**	TUD, AMS, ARUP
			T16.3	Intervention design (new built scenario)	**BOOM**	TUD, PFE, AMS, OMRT, HOLSCH
17	Amsterdam Cruquiusweg – Implementation & Monitoring	**AMS**	T17.1	Technology implementation (new built)	**BOOM**	TUD, PFE, AMS, HOLSCH
			T17.2	Technology monitoring (new built)	**AMS**	TUD, RINA-C
			T17.3	Impact analysis at urban level	**IES**	TUD, AMS, ARUP
18	Bucharest - Characterization & design	**AMCCRS**	T18.1	Data acquisition for baseline characterization	**AMCCRS**	IES, INFP
			T18.2	Case study modelling and intervention design	**AMCCRS**	TUD, PFE, SUR, XLD, RoGBC, RTB, HOLSCH
			T18.3	Construction project	**AMCCRS**	PFE, XLD, RTB, HOLSCH
19	Bucharest – Implementation, Monitoring & Assessment	**AMCCRS**	T19.1	Implementation of the exoskeleton intervention	**AMCCRS**	TUD, PFE, XLD, RoGBC
			T19.2	Post-intervention monitoring	**INFP**	AMCCRS
			T19.3	Replicability of the solutions through	**IES**	AMCCRS

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				impact analysis at urban level		
			T19.4	Implementation of building-specific early warning system and rapid response procedures	**INFP**	AMCCRS
20	Tecuci – Characterization & Digital model	**TUB**	T20.1	Data collection for area of interest	**TECUCI**	TUB, INFP, IES
			T20.2	Digital representation of exposed elements and identification of the points that need to be monitored	**TUB**	INFP, TECUCI
21	Tecuci – Monitoring & Assessment	**TUB**	T21.1	Multidisciplinary monitoring of the parameters specific to each type of risk	**TUB**	INFP, TECUCI
			T21.2	Implementation of tool for urban analysis	**INFP**	IES, TUB, TECUCI
22	Feedback and learnings from demos for improving MULTICARE solutions	**OMRT**	T22.1	Incorporating solutions library in parametric design	**OMRT**	TUD, AMS, BOOM
			T22.2	Calibrating assessment model	**OMRT**	TUD, AMS, BOOM
			T22.3	Improving the overall MULTICARE solutions	**AMS**	IES, PFE, STRESS, AMS, AMCCRS, BOOM, HOLSCH
23	Impact assessment of the MULTICARE solutions	**RINA-C**	T23.1	MULTICARE Demonstrators Assessment - Baseline characterization	**RINA-C**	TUD, IES, STRESS, AMS, AMCCRS
			T23.2	MULTICARE Demonstrators Assessment - Techno-economic assessment	**RINA-C**	TUD, SUR, ARUP
			T23.3	MULTICARE Demonstrators Assessment - Social and	**ASM**	TUD, STRESS, ASM, RoGBC, OMRT

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				Environmental assessment		
24	Capacity building, Communication & Dissemination, Exploitation - Planning	**ASM**	T24.1	Create Dissemination & communication plan and activities	**ASM**	All
			T24.2	Creation of internal contents and tools	**ASM**	All
			T24.3	Internal capacity building	**RoGBC**	All
			T24.4	Planning of replication	**RoGBC**	All
			T24.5	Definition of Exploitation and IPR management strategy	**RINA-C**	All
25	Capacity building, Communication & Dissemination, Exploitation - Implementation	**RoGBC**	T25.1	Begin Communication activities	**ASM**	All
			T25.2	Begin Dissemination activities	**ASM**	All
			T25.3	Capacity Building/Training content creation and delivery	**RoGBC**	TUD, STRESS, AMS, AMCCRS
			T25.4	MULTICARE Living Lab	**ASM**	All
			T25.5	Financial mechanisms and tools	**RoGBC**	All
			T25.6	Preliminary exploitation plan	**RINA-C**	All
			T25.7	Business case: Business model and business plan	**RINA-C**	All
26	Capacity building, Communication & Dissemination, Exploitation - Future scalability	**RINA-C**	T26.1	Financial schemes application at European level	**RoGBC**	All
			T26.2	Final exploitation plan	**RINA-C**	All
			T26.3	Techno-Economic Roadmap towards TRL9	**RINA-C**	All
			T26.4	Cooperation and knowledge exchange with relevant projects and initiatives	**RoGBC**	All
			T26.5	Continuation of	**ASM**	All

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				Communication activities		
			T26.6	Continuation of Dissemination activities	**ASM**	All
			T26.7	Implementation of MULTICARE Living Lab	**ASM**	TUD, STRESS, AMS, AMCCRS
			T26.8	Standardization of MULTICARE technology packages	**AMS**	TUD

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3.2. Timeline

WP	Title	Tasks	Leader
1	Project management and coordination - Planning and Execution	Project coordination Scientific coordination Financial management Data management	TUD
2	Project management and coordination - Monitoring and Execution	Project coordination Scientific coordination Financial management Data management	TUD
3	Project management and coordination - Execution and Closure	Project coordination Scientific coordination Financial management Data management	TUD
4	Performance requirements, criteria and user's needs, and MULTICARE overall approach	Performance requirements and KPIs for the physical solutions Performance requirements and KPIs for the digital solutions Definition of the assessment framework for the effectiveness of the MULTICARE solutions Overall concept of the MULTICARE solutions	TUD
5	Resilient-based framework and design tools for materials and building components	Definition of resilience indicators for materials and components Multi-hazard resilience-based framework at sub-system level Toolbox of materials, connections and systems for resilient facades and structures	PFE
6	Multi-risk framework and support tools for improving the whole-life resilience of buildings	Resilience metrics and rating systems for buildings Multi-risk framework and algorithms for socio-economic-environmental loss estimation Plug-ins for supporting multi-criteria building simulation and resilience design	TUD
7	Spatial decision-support framework and system for multi hazard resilience analysis at urban level	Hazard mapping and urban data identification for baseline model Material to urban level multi hazards resilience improvement framework Energy network resilience improvement framework Spatial Decision Support Tool development and testing, including User Interface	IES
8	Multi-criteria real-time monitoring and management of materials and building components	Identification of requirements of the monitoring system and relevant information gathered by it Development of the data acquisition and collection architecture on a schematic level Design seamless technical integration of components into the façade and structural elements	PFE
9	Health monitoring of buildings for data-driven prediction and warning systems	Real time data management framework Warning systems for natural events: earthquakes, floods and climate extremes Heat waves predictive warning services for building energy demand and IEQ optimization	IES
10	Early Warning and Rapid Response Systems for improving multi-hazard preparedness and responsiveness of cities and	Rapid earthquake loss estimation Development of flash-flood warning system at urban level Time-dependent estimation of travel times and isolated areas	INFP
11	Plug and play low-carbon resilient facade systems	Selection of materials and design of multi-layered modular panels according to the Task 3.1 Design of a low-carbon resilient modular façade panel/system with reversible connections Prototyping and testing Development of guidance on how to disassemble and maintain the proposed system	HOLSCH
12	Plug and play low-carbon resilient structural systems	Multi-hazard design of low-carbon timber structural systems Prototyping and testing of structural members and connection details Development of a technical handbook for resilient structural systems	SUR
13	Integrated low-carbon resilient façade-structure solutions	Definition of the exoskeleton system and its connections to the as-built structure Design of the foundation system for the exoskeleton intervention Prototyping and testing of exoskeleton modules End-user oriented guidelines for the exoskeleton systems	XLD
14	Acerra - Characterization & design	Data acquisition for baseline characterization Case study modelling and initial intervention design Lab scale validation – seismic testing Final intervention design	STRESS
15	Acerra – Implementation, Monitoring & Assessment	Implementation of the exoskeleton intervention Monitoring of the technologies Replicability of the solutions through impact analysis at urban level	STRESS
16	Amsterdam – Preparation and virtual demonstrator	Data collection, baseline assessment and definitions (new built & renovation) Virtual intervention modelling (new built & renovation scenario) Intervention design (new built scenario)	AMS
17	Amsterdam Cruquiusweg – Implementation & Monitoring	Technology implementation (new built) Technology monitoring (new built) Impact analysis at urban level	AMS
18	Bucharest - Characterization & design	Data acquisition for baseline characterization Case study modelling and intervention design Construction project	AMCCRS
19	Bucharest – Implementation, Monitoring & Assessment	Implementation of the exoskeleton intervention Post-intervention monitoring Replicability of the solutions through impact analysis at urban level Implementation of building-specific early warning system and rapid response procedures	AMCCRS
20	Tecuci – Characterization & Digital model	Data collection for area of interest Digital representation of exposed elements and identification of the points that need to be	TUB
21	Tecuci – Monitoring & Assessment	Multidisciplinary monitoring of the parameters specific to each type of risk Implementation of tool for urban analysis	TUB
22	Feedback and learnings from demos for improving MULTICARE solutions	Incorporating solutions library in parametric design Calibrating assessment model Improving the overall MULTICARE solutions	OMRT
23	Impact assessment of the MULTICARE solutions	MULTICARE Demonstrators Assessment - Baseline characterization MULTICARE Demonstrators Assessment - Techno-economic assessment MULTICARE Demonstrators Assessment - Social and Environmental assessment	RINA-C
24	Capacity building, Communication & Dissemination, Exploitation - Planning	Create Dissemination & communication plan and activities Creation of internal contents and tools Internal capacity building Planning of replication Definition of Exploitation and IPR management strategy	ASM
25	Capacity building, Communication & Dissemination, Exploitation - Implementation	Begin Communication activities Begin Dissemination activities Capacity Building/Training content creation and delivery MULTICARE Living Lab Financial mechanisms and tools Preliminary exploitation plan Business case: Business model and business plan	RoGBC
26	Capacity building, Communication & Dissemination, Exploitation - Future scalability	Financial schemes application at European level Final exploitation plan Techno-Economic Roadmap towards TRL9 Cooperation and knowledge exchange with relevant projects and initiatives Continuation of Communication activities Continuation of Dissemination activities Implementation of MULTICARE Living Lab Standardization of MULTICARE technology packages	RINA-C

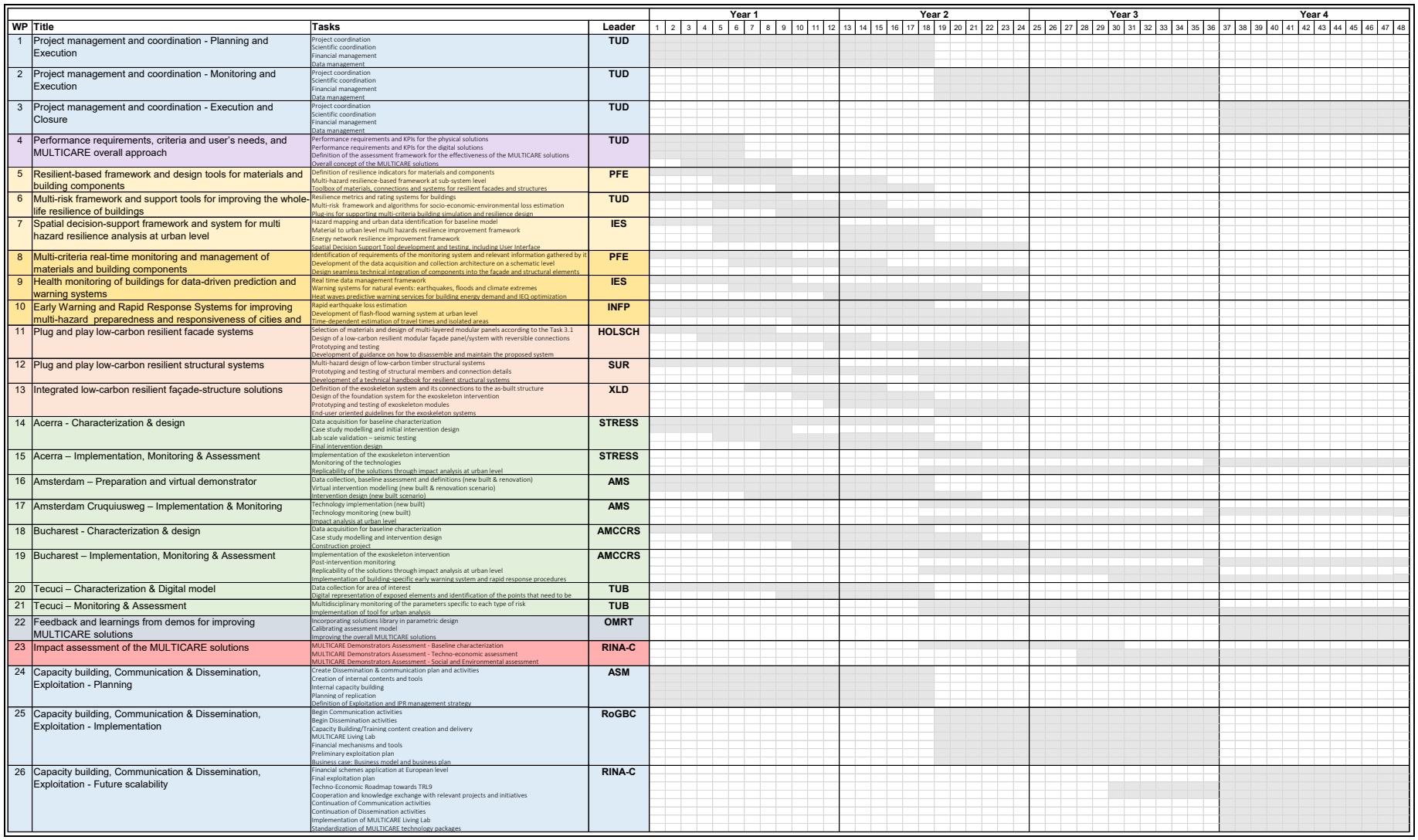

Figure 3. GANTT Chart

The GANTT – chart shows the overall timeline of the project including the time schedule per task and dependencies on other tasks. **Table 6** shows the detailed timeline per task.

Table 6. Tasks Timeline

WP	Description	Task	Description	Timeline
WP 1	Project management and coordination - Planning and Execution	T1.1	Project coordination	M1-18
		T1.2	Scientific coordination	M1-18
		T1.3	Financial management	M1-18
		T1.4	Data management	M1-18
WP 2	Project management and coordination - Monitoring and Execution	T2.1	Project coordination	M19-30
		T2.2	Scientific coordination	M19-30
		T2.3	Financial management	M19-30
		T2.4	Data management	M19-30
WP 3	Project management and coordination - Execution and Closure	T3.1	Project coordination	M31-48
		T3.2	Scientific coordination	M31-48
		T3.3	Financial management	M31-48
		T3.4	Data management	M31-48
WP 4	Performance requirements, criteria and user's needs, and MULTICARE overall approach	T4.1	Performance requirements and KPIs for the physical solutions	M1-M6
		T4.2	Performance requirements and KPIs for the digital solutions	M1-M6
		T4.3	Definition of the assessment framework for the effectiveness of the MULTICARE solutions	M1-M6
		T4.4	Overall concept of the MULTICARE solutions	M3-M9
WP 5	Resilient-based framework and design tools for materials and building components	T5.1	Definition of resilience indicators for materials and components	M1-M9
		T5.2	Multi-hazard resilience-based framework at sub-system level	M5-M15
		T5.3	Toolbox of materials, connections and systems for resilient facades and structures	M9-M18
WP 6	Multi-risk framework and support tools for improving the whole-life resilience of buildings	T6.1	Resilience metrics and rating systems for buildings	M1-M9
		T6.2	Multi-risk framework and algorithms for socio-economic-environmental loss estimation	M5-M15
		T6.3	Plug-ins for supporting multi-criteria building simulation and resilience design	M9-M21
WP 7	Spatial decision-support framework and system for multi hazard resilience	T7.1	Hazard mapping and urban data identification for baseline model	M1-M12
		T7.2	Material to urban level multi hazards resilience improvement framework	M6-M18
		T7.3	Energy network resilience improvement framework	M6-M18

	analysis at urban level	T7.4	Spatial Decision Support Tool development and testing, including User Interface	M13-M24
WP 8	Multi-criteria real-time monitoring and management of materials and building components	T8.1	Identification of requirements of the monitoring system and relevant information gathered by it	M1-M9
		T8.2	Development of the data acquisition and collection architecture on a schematic level	M6-M15
		T8.3	Design seamless technical integration of components into the façade and structural elements	M12-M24
WP 9	Health monitoring of buildings for data-driven prediction and warning systems	T9.1	Real time data management framework	M1-M9
		T9.2	Warning systems for natural events: earthquakes, floods and climate extremes	M6-M21
		T9.3	Heat waves predictive warning services for building energy demand and IEQ optimization	M12-M24
WP 10	Early Warning and Rapid Response Systems for improving multi-hazard preparedness and responsiveness of cities and regions	T10.1	Rapid earthquake loss estimation	M1-M18
		T10.2	Development of flash-flood warning system at urban level	M10-M24
		T10.3	Time-dependent estimation of travel times and isolated areas	M1-M24
WP 11	Plug and play low-carbon resilient facade systems	T11.1	Selection of materials and design of multi-layered modular panels according to the Task 3.1	M1-M8
		T11.2	Design of a low-carbon resilient modular façade panel/system with reversible connections	M4-M14
		T11.3	Prototyping and testing	M12-M24
		T11.4	Development of guidance on how to disassemble and maintain the proposed system	M18-M24
WP 12	Plug and play low-carbon resilient structural systems	T12.1	Multi-hazard design of low-carbon timber structural systems	M1-M12
		T12.2	Prototyping and testing of structural members and connection details	M10-M24
		T12.3	Development of a technical handbook for resilient structural systems	M18-M24
WP 13	Integrated low-carbon resilient façade-structure solutions	T13.1	Definition of the exoskeleton system and its connections to the as-built structure	M7-M15
		T13.2	Design of the foundation system for the exoskeleton intervention	M10-M18
		T13.3	Prototyping and testing of exoskeleton modules	M12-M24
		T13.4	End-user oriented guidelines for the exoskeleton systems	M18-M24
WP 14	Acerra - Characterization & design	T14.1	Data acquisition for baseline characterization	M1-M18
		T14.2	Case study modelling and initial intervention design	M1-M9
		T14.3	Lab scale validation – seismic testing	M5-M18
		T14.4	Final intervention design	M8-M21

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WP 15	Acerra – Implementation, Monitoring & Assessment	T15.1	Implementation of the exoskeleton intervention	M18-M36
		T15.2	Monitoring of the technologies	M31-M48
		T15.3	Replicability of the solutions through impact analysis at urban level	M18-M30
WP 16	Amsterdam – Preparation and virtual demonstrator	T16.1	Data collection, baseline assessment and definitions (new built & renovation)	M1-M18
		T16.2	Virtual intervention modelling (new built & renovation scenario)	M1-M18
		T16.3	Intervention design (new built scenario)	M7-M21
WP 17	Amsterdam Cruquiusweg – Implementation & Monitoring	T17.1	Technology implementation (new built)	M18-M30
		T17.2	Technology monitoring (new built)	M31-M48
		T17.3	Impact analysis at urban level	M18-M36
WP 18	Bucharest - Characterization & design	T18.1	Data acquisition for baseline characterization	M1-M18
		T18.2	Case study modelling and intervention design	M5-M21
		T18.3	Construction project	M10-M21
WP 19	Bucharest – Implementation, Monitoring & Assessment	T19.1	Implementation of the exoskeleton intervention	M18-M30
		T19.2	Post-intervention monitoring	M31-M48
		T19.3	Replicability of the solutions through impact analysis at urban level	M18-M36
		T19.4	Implementation of building-specific early warning system and rapid response procedures	M30-M48
WP 20	Tecuci – Characterization & Digital model	T20.1	Data collection for area of interest	M1-M18
		T20.2	Digital representation of exposed elements and identification of the points that need to be monitored	M9-M18
WP 21	Tecuci – Monitoring & Assessment	T21.1	Multidisciplinary monitoring of the parameters specific to each type of risk	M18-M30
		T21.2	Implementation of tool for urban analysis	M18-M48
WP 22	Feedback and learnings from demos for improving MULTICARE solutions	T22.1	Incorporating solutions library in parametric design	M31-M48
		T22.2	Calibrating assessment model	M31-M48
		T22.3	Improving the overall MULTICARE solutions	M31-M48
WP 23	Impact assessment of the MULTICARE solutions	T23.1	MULTICARE Demonstrators Assessment - Baseline characterization	M18-M30
		T23.2	MULTICARE Demonstrators Assessment - Techno-economic assessment	M28-M48
		T23.3	MULTICARE Demonstrators Assessment - Social and Environmental assessment	M28-M48
WP 24	Capacity building, Communication & Dissemination, Exploitation - Planning	T24.1	Create Dissemination & communication plan and activities	M1-M18
		T24.2	Creation of internal contents and tools	M1-M18
		T24.3	Internal capacity building	M1-M18
		T24.4	Planning of replication	M1-M18

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		T24.5	Definition of Exploitation and IPR management strategy	M1-M18
WP 25	Capacity building, Communication & Dissemination, Exploitation - Implementation	T25.1	Begin Communication activities	M19-M30
		T25.2	Begin Dissemination activities	M19-M30
		T25.3	Capacity Building/Training content creation and delivery	M19-M30
		T25.4	MULTICARE Living Lab	M19-M30
		T25.5	Financial mechanisms and tools	M19-M30
		T25.6	Preliminary exploitation plan	M19-M30
		T25.7	Business case: Business model and business plan	M19-M30
WP 26	Capacity building, Communication & Dissemination, Exploitation - Future scalability	T26.1	Financial schemes application at European level	M31-M48
		T26.2	Final exploitation plan	M31-M48
		T26.3	Techno-Economic Roadmap towards TRL9	M31-M48
		T26.4	Cooperation and knowledge exchange with relevant projects and initiatives	M31-M48
		T26.5	Continuation of Communication activities	M31-M48
		T26.6	Continuation of Dissemination activities	M31-M48
		T26.7	Implementation of MULTICARE Living Lab	M31-M48
		T26.8	Standardization of MULTICARE technology packages	M31-M48

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3.3. Effort

Table 7. Effort in Person-Months

WP	Description	Effort in Person-Month
1	Project management and coordination - Planning and Execution	10,80
2	Project management and coordination - Monitoring and Execution	11,90
3	Project management and coordination - Execution and Closure	8,70
	Subtotal WS 1	**31,4**
4	Performance requirements, criteria and user's needs, and MULTICARE overall approach	24,60
	Subtotal WS 2	**24,6**
5	Resilient-based framework and design tools for materials and building components	28,90
6	Multi-risk framework and support tools for improving the whole-life resilience of buildings	42,50
7	Spatial decision-support framework and system for multi hazard resilience analysis at urban level	75,30
	Subtotal WS 3	**146,7**
8	Multi-criteria real-time monitoring and management of materials and building components	39,90
9	Health monitoring of buildings for data-driven prediction and warning systems	49,80
10	Early Warning and Rapid Response Systems for improving multi-hazard preparedness and responsiveness of cities and regions	42,00
	Subtotal WS 4	**131,7**
11	Plug and play low-carbon resilient facade systems	114,20
12	Plug and play low-carbon resilient structural systems	56,60
13	Integrated low-carbon resilient façade-structure solutions	125,70
	Subtotal WS 5	**296,5**
14	Acerra - Characterization & design	55,60
15	Acerra – Implementation, Monitoring & Assessment	41,20
16	Amsterdam – Preparation and virtual demonstrator	45,40
17	Amsterdam Cruquiusweg – Implementation & Monitoring	44,40
18	Bucharest - Characterization & design	15,00
19	Bucharest – Implementation, Monitoring & Assessment	11,20
20	Tecuci – Characterization & Digital model	8,50
21	Tecuci – Monitoring & Assessment	12,80
	Subtotal WS 6	**234,1**
22	Feedback and learnings from demos for improving MULTICARE solutions	26,00
	Subtotal WS 7	**26,00**
23	Impact assessment of the MULTICARE solutions	57,20
	Subtotal WS 8	**57,20**

24	Capacity building, Communication & Dissemination, Exploitation - Planning	36,00
25	Capacity building, Communication & Dissemination, Exploitation - Implementation	77,10
26	Capacity building, Communication & Dissemination, Exploitation - Future scalability	57,90
	Subtotal WS 9	**171,0**
Total		**1.119,2**

The detailed effort and budget per beneficiary is given in Annex_1 Part_A (Description of Action).

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3.4. Risk Mitigation

Table 8. Risk Mitigation

Risk number	Description	Work Package No(s)	Proposed Mitigation Measures	Mitigation Lead
1	Large consortium and inexperience in HE projects	WP3, WP1, WP2	The project coordinator has a professional background and wealth of experience in national and EU funded research projects.	**TU Delft**
2	Budget is overspent	WP18, WP26, WP22, WP15, WP10, WP9, WP19, WP2, WP7, WP12, WP14, WP13, WP17, WP1, WP16, WP6, WP8, WP3, WP21, WP4, WP23, WP20, WP24, WP25, WP5, WP11	Project management and budget control is performed by the management team regularly in the Consortium meetings. Number of components and solutions to be implemented in the demo buildings can be limited.	**TU Delft**
3	Communication and disseminations are inefficient	WP24, WP26, WP25	Communication and dissemination planned at the start and checked during time by all Consortium.	**ASM**
4	Delays of key deliverables	WP18, WP26, WP15, WP22, WP10, WP9, WP19, WP2, WP7, WP12, WP13, WP14, WP17, WP1, WP16, WP6, WP8, WP3, WP21, WP4, WP23, WP20, WP24, WP25, WP5, WP11	When deadlines cannot be met, provisional draft will still be delivered to allow any interdependency actions to be carried out. Milestones are planned by the Consortium to minimise this risk.	**TU Delft**
5	Withdrawn of partners or conflicts, e.g. IPR conflicts	WP24, WP26, WP25	WS9 carefully plans exploitations tasks against this risk. Partners have scientific and commercial interests which have been already stated in the proposal.	**RINA-C**
6	Financial risks or costs are much larger than expected due to political instability or energy crises	WP3, WP1, WP2	Energy crises and raw material scarcity is beyond the project, but value chain simulations are expected to minimise material and financial losses. In the scenario in which tasks will cost much more than planned, the tasks will be rescoped whilst preserving the project intent.	**TU Delft**

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			All partners are financially sound, but in case of bankruptcy of any partner, the rest of the Consortium will assume the tasks of the partner leaving the project, or a new partner would be invited to join the Consortium	
7	MULTICARE solutions are not accepted by users, negative feedback from users		From the beginning, WP 8 develops tailored coparticipatory design workshop, collects user feedback to achieve user-centred solutions. Sound user engagement methodology.	**WP8-lead (PFE)**
8	MULTICARE plug & play solutions do not achieve expected performances		Advisory committee supervises the technology development. Solutions start from already existing novel solution of TRL 4-5-6, thanks to the partner having extensive experience in this technology	**UNIROMA1**
9	Time to integrate MULTICARE framework in new technology development is insufficient		There are respectively 6 and 9 months between WSs 3 and 4, and WSs 3 and 5, which allow sufficient time for technological integration. The process will be closely monitored; intermediate phases will provide check points to ensure schedule respect.	**TU Delft**
10	Digital services do not collect sufficient data to provide effective services	WP8, WP10, WP9	Historical data from the Consortium or publicly available will be used to integrate data collected in demo sites. The risk is therefore minimal. Simulation data will also be used to integrate where appropriate.	**IES**
11	MULTICARE solutions have excessive costs and are not accepted in the market	WP13, WP11, WP12	Optimization of costs is a key target in WS2, WS3 and WS4. The cost-effectiveness is considered since the beginning of the project.	**RINA-C**
12	Certification and testing is not achieved for the plug & play technologies	WP13, WP11, WP12	Re-design of solutions to fit standard requirements. Partners have extensive experience in providing certified solutions.	**UNIROMA1**
13	Disruptive hazard event happens before the solutions is implemented in the demo site	WP14, WP18, WP21, WP15, WP17, WP22, WP16, WP20, WP19	Mitigation is beyond the project. Another demo from the Consortium partners can be identified or new demo site will be identified.	**TU Delft**

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14	Low stakeholder engagement at demo site or demo site withdraws from project	WP14, WP18, WP21, WP15, WP17, WP23, WP16, WP20, WP19	Use of different techniques, tools and channels and support engagement and encourage interest in the actions.	**ASM**
15	Insufficient data to demonstrate solutions	WP14, WP18, WP21, WP15, WP17, WP22, WP16, WP20, WP19	Same mitigation action of Risk 10. In addition, additional projects from consortium partners will be seek to add data	**RINA-C**

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4. Project Reporting

4.1 Periodic Reporting

The project has three reporting periods as shown in **Table 9**.

Table 9. Periodic Reporting

Reporting Period No.	From Month	To Month	Duration in Months	Start date	End date	Review No	Timing	Concerns
1.	1	18	18	1-10-2023	31-3-2025	RV1	21	First periodic review
2.	19	30	12	1-4-2025	31-3-2026	RV2	33	Second periodic review
3.	31	48	18	1-4-2026	30-9-2027	RV3	48	Third periodic review

Composing the Periodic Report and preparing for the related Review Meeting is a parallel and staged process each time. The draft Periodic Report is the basis for the Review.
The Report consists of two parts.

Part_A is an assembly of tables in which the outputs and other implementation data of the project are gathered. For example deliverables, milestones, publications, results. Part_B is the written report that mirrors Part_B of the DoA in the sense that it narrates on work progress towards the set objectives and aims.

TU Delft coordinates the composition of both parts. For Part_A the coordinator will approach beneficiaries timely to for their inputs. For each item a separate form will be provided. For Part_B the WP-leads receive templates from the Coordinator that not only include the main items from the project proposal but also directed questions and requests that will enable the Coordinator – in collaboration with the Workstream-leads – to create the integrated narrative. It is the responsibility of the Workstream-leads to setup a close exhange with the Workpackage-leads and Task-leads. Obviously this exchange will be built from the project start already.

4.2 Continuous Reporting

Throughout its lifetime the project will produce Deliverables and achieve Milestones. This is an ongoing process that will be steered and monitored by the Coordinator. In each meeting of the Executive Board and all meetings of the General Assembly progress will be assessed.

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The milestones and their means of verification are given in **Table 10**.

Table 10. Milestones

Milestone No	Milestone Name	Work Package No	Lead Beneficiary	Means of Verification	Due Date (month)
1	MULTICARE requirements and development guidelines and initial planning	WP24, WP4	TUD	D2.1, D2.2, D2.4, D9.1.1, D9.1.6	9
2	MULTICARE resilience-based framework and models ready	WP10, WP5, WP9, WP6, WP7	PFE	D3.1.1, D3.2.1, D3.2.2, D3.3.1, D4.2.2, D4.3.1, D4.3.4	15
3	Data acquisition from pre-interventions monitoring campaign	WP14, WP18, WP16, WP20	STRESS	D6.1.1, D6.1.2, D6.3.1, D6.5.1, D6.5.2, D6.7.1	18
4	MULTICARE digital services and tools ready or successfully integrated and tested	WP8, WP10, WP5, WP9, WP6, WP7	PFE	D3.1.3, D3.2.3, D3.2.4, D3.2.5, D3.3.2, D4.1.3, D4.2.1, D4.2.3, D4.3.3, D4.3.5	24
5	Launching of intervention execution, Agreement on joint exploitation of MULTICARE solutions	WP13, WP15, WP17, WP25, WP19, WP11	Hölscher	D5.1.1, D5.1.3, D5.1.5, D5.3.1, D5.3.2, D6.1.3, D6.3.4, D6.5.3, D9.2.4	27
6	MULTICARE technologies successfully deployed on demo site, MULTICARE urban tool successfully implemented	WP21, WP15, WP17, WP19	STRESS	D6.2.1, D6.2.3, D6.4.1, D6.4.3, D6.6.1, D6.6.3, D6.8.1	36
7	MULTIARE digital tool final release; Successful demonstration of MULTICARE systems; exploitation strategy	WP26, WP22	OMRT	D7.1, D7.2, D7.3, D8.2, D8.3, D9.3.2	48

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For the creation of the deliverables the project has installed a staged process that includes a timeline per deliverable plus its author and reviewer. The rationale is explained in **Figure 4**.

Work Package No	WP1
Deliverable Related No	D1.1
Deliverable No	D1
Deliverable Name	Project Management Plan (M2)
Description	Project Management Plan with a Gantt chart and a Work Breakdown Structure (WBS), to be completed at a very early stage of the project. It should include a schedule per task, responsible partner related subtasks, related deliverables, and dependencies on other tasks.
Lead Beneficiary	TU Delft
Type	R
Dissemination Level	PU
Call for Deliverable | CO to WPL -WPL to author | 6 weeks in advance	**19.10.23**
Author send draft to WP-lead | WP-lead sends to reviewer, cc CO | 4 weeks in advance	**02.11.23**
Reviewer sends feedback to author, cc WPL and CO | 3 weeks in advance	**09.11.23**
Author has 3 week to improve and finalise the deliverable | Author then sends to WPL, and WPL to CO | 1 week in advance	**23.11.23**
Submission | CO to EC	**30 Nov 2023**
Month	**2**
Status	Pending

Figure 4. Rationale Deliverable Creation

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Table 11. Timeline Deliverable Production (Quality Control)

Work Package No	**Deliverable Related No**	**Deliverable Name**	**Lead Beneficiary (Author)**	**WP-lead**	**Suggested Reviewer**	**Type**	**Dissemination Level**	Call for Deliverable | CO to WPL - WPL to author | 6 weeks in advance	Author send draft to WP-lead | WP-lead sends to reviewer, cc CO | 4 weeks in advance	Reviewer sends feedback to author, cc WPL and CO | 3 weeks in advance	Author has 3 week to improve and finalise the deliverable | Author then sends to WPL, and WPL to CO | 1 week in advance	Submission | CO to EC	**Month (sorted)**
WP1	D1.1	Project Management Plan (M2)	TU Delft	TU Delft	RINA-C	R	PU	19.10.23	02.11.23	09.11.23	23.11.23	30 Nov 2023	2
WP24	D24.2	Project website, social media channels and communication materials	ASM	ASM	TU Delft	DEC	PU	19.11.23	03.12.23	10.12.23	24.12.23	31 Dec 2023	3
WP1	D1.2	Data Management Plan	TU Delft	TU Delft	RINA-C	DMP	PU	18.02.24	03.03.24	10.03.24	24.03.24	31.03.24	6
WP1	D1.3	Ethics requirements	TU Delft	TU Delft	ASM	OTHER	SEN	18.02.24	03.03.24	10.03.24	24.03.24	31.03.24	6
WP24	D24.1	Dissemination and Communication Plan	ASM	ASM	RoGBC	R	PU	18.02.24	03.03.24	10.03.24	24.03.24	31.03.24	6
WP4	D4.1	Technology requirements and KPIs	TU Delft	TU Delft	PFE	R	PU	18.02.24	03.03.24	10.03.24	24.03.24	31.03.24	6
WP4	D4.2	Digitalization requirements and KPIs (with CDE requirements)	TU Delft	TU Delft	IES R&D	R	PU	18.02.24	03.03.24	10.03.24	24.03.24	31.03.24	6
WP4	D4.3	Systems standards (interoperability, communication)	TU Delft	TU Delft	IES R&D	R	SEN	18.02.24	03.03.24	10.03.24	24.03.24	31.03.24	6
WP24	D24.7	Exploitation and IPR management strategy (M9)	RINA-C	ASM	TU Delft	R	SEN	19.05.24	02.06.24	09.06.24	23.06.24	30 Jun 2024	9

WP4	D4.4	Overall MULTICARE framework	TU Delft	TU Delft	UNIROMA1	R	PU	19.05.24	02.06.24	09.06.24	23.06.24	30 Jun 2024	9
WP6	D6.1	Framework and rating system for resilient buildings	TU Delft	TU Delft	AMS Institute	R	PU	19.05.24	02.06.24	09.06.24	23.06.24	30 Jun 2024	9
WP24	D24.3	Dissemination and communication activities report (M12)	ASM	ASM	RoGBC	R	PU	19.08.24	02.09.24	09.09.24	23.09.24	30 Sep 2024	12
WP10	D10.1	Method for rapid seismic loss estimation	INCDFP	INCDFP	UNIROMA1	R	PU	19.11.24	03.12.24	10.12.24	24.12.24	31 Dec 2024	15
WP10	D10.4	Method for time-dependent travel times	INCDFP	INCDFP	TU Delft	R	PU	19.11.24	03.12.24	10.12.24	24.12.24	31 Dec 2024	15
WP5	D5.1	Multi-criteria framework for resilient components	PFE	PFE	TU Delft	R	PU	19.11.24	03.12.24	10.12.24	24.12.24	31 Dec 2024	15
WP6	D6.2	Algorithms for multi-risk analysis of buildings	TU Delft	TU Delft	ARUP	R	PU	19.11.24	03.12.24	10.12.24	24.12.24	31 Dec 2024	15
WP7	D7.1	Framework for energy network improvement	IES R&D	IES R&D	TU Delft	R	PU	19.11.24	03.12.24	10.12.24	24.12.24	31 Dec 2024	15
WP9	D9.2	Flash-flood and climate monitoring protocol	UTBV	IES R&D	AMS Institute	R	SEN	19.11.24	03.12.24	10.12.24	24.12.24	31 Dec 2024	15
WP1	D1.4	Project Management Plan (M18)	TU Delft	TU Delft	RINA-C	R	SEN	17.02.25	03.03.25	10.03.25	24.03.25	31.03.25	18
WP10	D10.2	Seismic warning and rapid loss estimation service	INCDFP	INCDFP	ARUP	R	SEN	17.02.25	03.03.25	10.03.25	24.03.25	31.03.25	18
WP14	D14.1	Baseline assessment of building – Acerra	STRESS	STRESS	RINA-C	R	SEN	17.02.25	03.03.25	10.03.25	24.03.25	31.03.25	18
WP14	D14.2	Urban data acquisition - Acerra	STRESS	STRESS	IES R&D	R	SEN	17.02.25	03.03.25	10.03.25	24.03.25	31.03.25	18
WP14	D14.4	IFC of the BIM model – Acerra	UNIROMA1	STRESS	OMRT	R	SEN	17.02.25	03.03.25	10.03.25	24.03.25	31.03.25	18
WP14	D14.5	Report on seismic testing - Acerra	UNINA	STRESS	UNIROMA1	R	PU	17.02.25	03.03.25	10.03.25	24.03.25	31.03.25	18
WP16	D16.1	Baseline assessment – Amsterdam (new built & historic centre)	AMS Institute	AMS	TU Delft	R	SEN	17.02.25	03.03.25	10.03.25	24.03.25	31.03.25	18

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WP16	D16.2	Design handbook facades (new built)	Boom	AMS	AMS Institute	R	PU	17.02.25	03.03.25	10.03.25	24.03.25	31.03.25	18
WP16	D16.3	Virtual intervention modelling result (historic centre)	AMS Institute	AMS	TU Delft	R	PU	17.02.25	03.03.25	10.03.25	24.03.25	31.03.25	18
WP18	D18.1	Baseline assessment of building - Bucharest	PMB	AMCCRS	INCDFP	R	SEN	17.02.25	03.03.25	10.03.25	24.03.25	31.03.25	18
WP18	D18.2	Urban data acquisition - Bucharest	PMB	AMCCRS	INCDFP	R	SEN	17.02.25	03.03.25	10.03.25	24.03.25	31.03.25	18
WP18	D18.4	IFC of the BIM model - Bucharest	UNIROMA1	AMCCRS	OMRT	R	SEN	17.02.25	03.03.25	10.03.25	24.03.25	31.03.25	18
WP20	D20.1	Baseline assessment – Tecuci	UTBV	TUB	IES R&D	R	SEN	17.02.25	03.03.25	10.03.25	24.03.25	31.03.25	18
WP24	D24.4	Dissemination and communication activities report (M18)	ASM	ASM	RoGBC	R	PU	17.02.25	03.03.25	10.03.25	24.03.25	31.03.25	18
WP24	D24.5	Capacity Building Needs by Stakeholder Group	RoGBC	ASM	RINA-C	R	PU	17.02.25	03.03.25	10.03.25	24.03.25	31.03.25	18
WP24	D24.6	Training Content Creation Plan	RoGBC	ASM	TU Delft	R	PU	17.02.25	03.03.25	10.03.25	24.03.25	31.03.25	18
WP24	D24.8	Exploitation and IPR management strategy (M18)	RINA-C	ASM	TU Delft	R	SEN	17.02.25	03.03.25	10.03.25	24.03.25	31.03.25	18
WP5	D5.2	Catalogue of materials, systems	TU Delft	PFE	PFE	R	PU	17.02.25	03.03.25	10.03.25	24.03.25	31.03.25	18
WP5	D5.3	Database of resilient components/systems	OMRT	PFE	TU Delft	R	SEN	17.02.25	03.03.25	10.03.25	24.03.25	31.03.25	18
WP9	D9.1	Seismic monitoring service	INCDFP	IES R&D	IES R&D	R	SEN	17.02.25	03.03.25	10.03.25	24.03.25	31.03.25	18
WP14	D14.3	Intervention project report - Acerra	UNINA	STRESS	UNIROMA1	DEM	SEN	19.05.25	02.06.25	09.06.25	23.06.25	30 Jun 2025	21
WP17	D17.1	Intervention project report - Amsterdam	Boom	AMS	PFE	DEM	SEN	19.05.25	02.06.25	09.06.25	23.06.25	30 Jun 2025	21
WP18	D18.3	Intervention project report - Bucharest	PMB	AMCCRS	UNIROMA1	DEM	SEN	19.05.25	02.06.25	09.06.25	23.06.25	30 Jun 2025	21
WP6	D6.3	Plug-in for retrofitting design of heritage buildings	AMS Institute	TU Delft	TU Delft	R	SEN	19.05.25	02.06.25	09.06.25	23.06.25	30 Jun 2025	21

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WP6	D6.4	Plug-in for tailor-based resilience design	UNIROMA1	TU Delft	OMRT	R	PU	19.05.25	02.06.25	09.06.25	23.06.25	30 Jun 2025	21
WP6	D6.5	Parametric tool for supporting resilience design	OMRT	TU Delft	AMS Institute	R	SEN	19.05.25	02.06.25	09.06.25	23.06.25	30 Jun 2025	21
WP10	D10.3	Flash-flood warning system service	UTBV	INCDFP	INCDFP	R	SEN	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP10	D10.5	GIS service for time-dependent travel times	INCDFP	INCDFP	TU Delft	R	SEN	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP11	D11.1	Façade prototype for Italian demo	Hölscher	Hölscher	PFE	R	SEN	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP11	D11.2	Guidelines for façade assembly - Italy	PFE	Hölscher	Hölscher	R	SEN	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP11	D11.3	Façade prototype for Netherlands demo	Hölscher	Hölscher	PFE	R	SEN	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP11	D11.4	Guidelines for façade assembly - Netherlands	PFE	Hölscher	Hölscher	R	SEN	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP11	D11.5	Façade prototype for Romanian demo	Hölscher	Hölscher	PFE	R	SEN	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP11	D11.6	Guidelines for façade assembly - Romania	PFE	Hölscher	Hölscher	R	SEN	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP12	D12.1	Structural sub-assembly prototype for Italian demo	XLD	SUR	UNIROMA1	R	SEN	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP12	D12.2	Structural panel prototype for Romanian demo	XLD	SUR	UNIROMA1	R	SEN	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP12	D12.3	Report on seismic testing – structural prototypes	UNIROMA1	SUR	UNINA	R	PU	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP12	D12.4	Technical handbook for resilient structural systems	UNIROMA1	SUR	UNINA	R	PU	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP13	D13.1	Exoskeleton prototype for Italian demo	XLD	XLD	UNIROMA1	R	SEN	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP13	D13.2	Exoskeleton prototype for Romanian demo	XLD	XLD	UNIROMA1	R	SEN	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24

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WP13	D13.3	End-user oriented guidelines for holistic retrofit	UNIROMA1	XLD	TU Delft	R	PU	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP25	D25.1	Dissemination and communication activities report (M24)	ASM	RoGBC	RINA-C	R	PU	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP25	D25.5	Preliminary Exploitation Plan (M24)	RINA-C	RoGBC	TU Delft	R	SEN	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP7	D7.2	Multi-risk Spatial Decision Support System	IES R&D	IES R&D	TU Delft	R	SEN	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP8	D8.1	Digital control system for facades	PFE	PFE	RINA-C	R	SEN	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP8	D8.2	Digital control system for timber material	RINA-C	PFE	UNIROMA1	R	SEN	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP8	D8.3	Maintenance and optimization tool for facades	PFE	PFE	TU Delft	R	SEN	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP9	D9.3	Overheating risk prediction and IEQ optimization service	IES R&D	IES R&D	TU Delft	R	SEN	19.08.25	02.09.25	09.09.25	23.09.25	30 Sep 2025	24
WP2	D2.1	Project Management Plan (M30)	TU Delft	TU Delft	RINA-C	R	SEN	17.02.26	03.03.26	10.03.26	24.03.26	31.03.26	30
WP23	D23.1	Baseline analysis from technical, economic, environmental and social perspective	RINA-C	RINA-C	STRESS	R	SEN	17.02.26	03.03.26	10.03.26	24.03.26	31.03.26	30
WP25	D25.2	Dissemination and communication activities report (M30)	ASM	RoGBC	RoGBC	R	PU	17.02.26	03.03.26	10.03.26	24.03.26	31.03.26	30
WP25	D25.3	Preliminary Living Lab activities report	ASM	RoGBC	STRESS	R	PU	17.02.26	03.03.26	10.03.26	24.03.26	31.03.26	30
WP25	D25.4	Training Content for External Stakeholders	RoGBC	RoGBC	TU Delft	R	PU	17.02.26	03.03.26	10.03.26	24.03.26	31.03.26	30
WP25	D25.6	Preliminary Exploitation Plan (M30)	RINA-C	RoGBC	TU Delft	R	SEN	17.02.26	03.03.26	10.03.26	24.03.26	31.03.26	30
WP25	D25.7	MULTICARE business case	RINA-C	RoGBC	UNIROMA1	R	SEN	17.02.26	03.03.26	10.03.26	24.03.26	31.03.26	30

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WP15	D15.1	Intervention execution report - Acerra	STRESS	STRESS	UNIROMA1	DEM	SEN	19.08.26	02.09.26	09.09.26	23.09.26	30 Sep 2026	36
WP15	D15.3	SDSS analysis result - Acerra	IES R&D	STRESS	STRESS	DEM	PU	19.08.26	02.09.26	09.09.26	23.09.26	30 Sep 2026	36
WP17	D17.2	Intervention execution report - Amsterdam	Boom	AMS	PFE	DEM	SEN	19.08.26	02.09.26	09.09.26	23.09.26	30 Sep 2026	36
WP17	D17.4	SDSS analysis result - Amsterdam	IES R&D	AMS	AMS Institute	DEM	PU	19.08.26	02.09.26	09.09.26	23.09.26	30 Sep 2026	36
WP19	D19.1	Intervention execution report - Bucharest	PMB	AMCCRS	UNIROMA1	DEM	SEN	19.08.26	02.09.26	09.09.26	23.09.26	30 Sep 2026	36
WP19	D19.3	Seismic risk and rapid loss estimation - Bucharest	INCDFP	AMCCRS	ARUP	R	PU	19.08.26	02.09.26	09.09.26	23.09.26	30 Sep 2026	36
WP19	D19.4	SDSS analysis result - Bucharest	IES R&D	AMCCRS	INCDFP	DEM	PU	19.08.26	02.09.26	09.09.26	23.09.26	30 Sep 2026	36
WP21	D21.1	Multi-risk and rapid loss estimation - Tecuci	UTBV	TUB	TU Delft	R	PU	19.08.26	02.09.26	09.09.26	23.09.26	30 Sep 2026	36
WP15	D15.2	Operation & Maintenance performance - Acerra	RINA-C	STRESS	STRESS	DEM	SEN	19.08.27	02.09.27	09.09.27	23.09.27	30 Sep 2027	48
WP17	D17.3	Operation & Maintenance performance – Amsterdam	RINA-C	AMS	AMS Institute	DEM	SEN	19.08.27	02.09.27	09.09.27	23.09.27	30 Sep 2027	48
WP19	D19.2	Operation & Maintenance performance - Bucharest	INCDFP	AMCCRS	RINA-C	DEM	SEN	19.08.27	02.09.27	09.09.27	23.09.27	30 Sep 2027	48
WP22	D22.1	Components digital library (final release)	TU Delft	OMRT	PFE	R	PU	19.08.27	02.09.27	09.09.27	23.09.27	30 Sep 2027	48
WP22	D22.2	Parametric tool (final release)	OMRT	OMRT	AMS Institute	R	PU	19.08.27	02.09.27	09.09.27	23.09.27	30 Sep 2027	48
WP23	D23.2	Techno-economic assessment	RINA-C	RINA-C	UNIROMA1	R	PU	19.08.27	02.09.27	09.09.27	23.09.27	30 Sep 2027	48
WP23	D23.3	Environmental and social assessment	ASM	RINA-C	TU Delft	R	PU	19.08.27	02.09.27	09.09.27	23.09.27	30 Sep 2027	48
WP26	D26.1	Final Exploitation Plan	RINA-C	RINA-C	TU Delft	R	SEN	19.08.27	02.09.27	09.09.27	23.09.27	30 Sep 2027	48

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WP26	D26.2	Cooperation with sister projects and initiatives report	ASM	RINA-C	RoGBC	R	PU	19.08.27	02.09.27	09.09.27	23.09.27	30 Sep 2027	48
WP26	D26.3	TRL9 Roadmap and standardization	RINA-C	RINA-C	ASM	R	SEN	19.08.27	02.09.27	09.09.27	23.09.27	30 Sep 2027	48
WP26	D26.4	MULTICARE Resilience Toolkits for essential stakeholders and relevant EU initiatives	RoGBC	RINA-C	ASM	R	PU	19.08.27	02.09.27	09.09.27	23.09.27	30 Sep 2027	48
WP26	D26.5	Final Dissemination and Communication activities report	ASM	RINA-C	RINA-C	R	PU	19.08.27	02.09.27	09.09.27	23.09.27	30 Sep 2027	48
WP26	D26.6	Final Living Lab activities report	ASM	RINA-C	RoGBC	R	PU	19.08.27	02.09.27	09.09.27	23.09.27	30 Sep 2027	48
WP26	D26.7	Roadmap for circular and resilient packages	ASM	RINA-C	TU Delft	R	PU	19.08.27	02.09.27	09.09.27	23.09.27	30 Sep 2027	48
WP3	D3.1	Open Access to Research Data	TU Delft	TU Delft	INCDFP	R	PU	19.08.27	02.09.27	09.09.27	23.09.27	30 Sep 2027	48

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