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Next Generation Damage and Post-Crisis Needs Assessment Tool for Reconstruction and Recovery Planning

Capability Project

Plan for the use of the foreground

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ABBREVIATIONS AND ACRONYMS

ABBREVIATION	DESCRIPTION
2G	2nd Generation
3 GPPP	3rd Generation Partnership Project
3G	3rd Generation
AC	Alternating Current
ADC	Analogue to Digital Converter
ADSL	Asymmetric Digital Subscriber Line
CPE	Customer Premises Equipment
CPU	Central Processing Unit
DB	DataBase
DBMS	DataBase Management System
E/M	Electro-Mechanical
EC	European Commission
EDGE	Enhanced Data rates for GSM Evolution
EIRP	Equivalent Isotropically Radiated Power
EMS-98	European Macro-seismic Scale-98
EPON	Ethernet Passive Optical Network
ETABS	Software package for the structural analysis and design of buildings
EU	European Union
GPRS	General Packet Radio Service
GPS	Global positioning System
GSM	Global System for Mobile communications
HSPA	High Speed Packet Access
HW	Hardware
IEC Code	International Standard
IP	Internet Protocol
IP Code	International Protection Marking
IPR	Intellectual Properties Rights
LAN	Local Area Network
LCD	Liquid Crustal Display
LED	Light Emitting Diode
LOS	Line-of-Sight
LPS	Local Positioning System

LTE	Long Term Evolution
NS	Non-Structural
NTP	Network Time Protocol
OFDM	Orthogonal Frequency-Division Multiplexing
OGS	Open Geospatial Consortium
OLSR	Optimized Link State Routing Protocol
PAN	Personal Area Network
PCCDN	Post Crisis Needs Assessment Tool in regards to Construction Damage and related Needs
POTS	Plain Old Telephone Service
QoS	Quality of Service
RECONASS	Reconstruction and REcovery Planning: Rapid and Continuously Updated COnstruction Damage, and Related Needs ASSessment
RF	Radio Frequency
RTLS	Real Time Location System
SEED	Standard for the Exchange of Earthquake Data
SW	Software
SWE	Sensor Web Enablement
TCP	Transmission Control Protocol
UAV	Unmanned Aerial Vehicle
UMTS	Universal Mobile Telecommunications System
USB	Universal Serial Bus
VDSL	Very high bit rate Digital Subscriber Line
VLAN	Virtual Local Area Network
WAN	Wide Area Network
W-CDMA	Wide Code Division Multiple Access
WGS84	World Geodetic System
WLAN	Wireless Local Area Network
WP	Work Package
WSN	Wireless Sensor Network

GLOSSARY OF TERMS

Case Study	A case study is a descriptive, exploratory or explanatory analysis of an event.
Communication Gateway Module	In this work the Communication gateway Module refers to the overall communication means utilised to exchange information from the sensors and LPS to the assessment tool (PCCDN).
Early recovery	A multidimensional process of recovery that begins in a humanitarian setting. It is guided by development principles that seek to build on humanitarian programs and to catalyse sustainable development opportunities. It aims to generate self-sustaining, nationally owned, resilient processes for post crisis recovery. It encompasses the restoration of basic services, livelihoods, shelter, governance, security and rule of law, environment and social dimensions, including the reintegration of displaced populations (CWGER, 2008).
Fragility Functions for non-structural components	In this work they show the probability of the non-structural component experiencing or exceeding a certain damage state conditioned on the level of acceleration in the case of acceleration-sensitive non-structural components or the level of drift in the case of drift sensitive non-structural components.
Functional Requirement (FR)	An FR is a statement of an action or expectation of what the system will take or do. It is measured by concrete means like data values, decision making logic and algorithms.
GEM (Global Earthquake Model)	In the GEM project researchers from different countries are developing a physical earthquake risk estimation model of global use. In it a common terminology or taxonomy is critical to document variations in building design and construction practices around the world
GSM, GPRS, UMTS, HSPA, LTE	GSM, GPRS, UMTS, HSPA, LTE refer to a holistic package of public mobile communication solutions with capabilities to transmit data.
Interstory Drift	The relative horizontal displacement of two adjacent floors in a building. Inter-story drift can also be expressed as a percentage of the story height separating the adjacent floors.
Magnitude	Size of an earthquake measured on the open ended scale of moment magnitude, sometimes called Richter magnitude.
Miniseed	A stripped down version of SEED (Standard for the Exchange of Earthquake Data) which only contains waveform data. SEED is a data format intended primarily for the archival and exchange of seismological time series data and related metadata.
Non-functional Requirement (NR)	An NR is a low-level requirement that focuses on the specific characteristics that must be addressed in order to be acceptable as an end product. NRs have a focus on messaging, security, and system interaction.
Non-structural Components	All items in a building other than the building structural system and its foundation. Included are all architectural elements such as cladding, glazing, ceiling systems and interior partitions that are permanently attached to the building; all mechanical and electrical equipment such as fire sprinkler systems, water and sewer piping, HVAC (Heating, Ventilating and Air Conditioning) systems and electrical distribution and lighting systems that are permanently attached to the building.

	For the purposes of this deliverable non-structural components do not include building contents.
Point Cloud	A point cloud is a set of data points in some coordinate system. In a three-dimensional coordinate system, these points are usually defined by X, Y, and Z coordinates, and often are intended to represent the external surface of an object.
Rehabilitation	This term is used to include repair, retrofit and replacement and is used interchangeably with these words.
Remote-Sensing	Remote sensing is the acquisition of information about an object or phenomenon without making physical contact with the object and thus in contrast to in situ observation. In this work by using such term we refer to the procedure of obtaining data through aerial or satellite photos regarding the condition of a building as seen from its exterior.
Structural Components	Building components that are part of the intended gravity, seismic, blast/impact or fire forces resisting system, or that provide measurable resistance to these forces.
System Architecture	A system architecture or systems architecture is the conceptual model that defines the structure, behaviour, and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures and behaviours of the system. A system architecture can comprise system components, the externally visible properties of those components, the relationships (e.g. the behaviour) between them. It can provide a plan from which products can be procured, and systems developed, that will work together to implement the overall system.
Taxonomy	Categorization system
Technical Requirement (TR)	A technical requirement pertains to the technical aspects that a system must fulfil, such as performance-related issues, reliability issues, and availability issues etc.
Technical Specification	Specification (often abbreviated as spec) may refer to an explicit set of requirements to be satisfied by a material, design, product, or service.
User Requirement (UR)	A UR is a statement of what users need to accomplish. It is a mid-level requirement describing specific operations for a user (e.g., a business user, system administrator, or the system itself). They are usually written in the user's language and define what the user expects from the end product.
Wi-Fi	The Wi-Fi Alliance, the organization that owns the Wi-Fi (registered trademark) term specifically defines Wi-Fi as any 'wireless local area network (WLAN) products that are based on the IEEE 802.11 standards.'
WiMAX	WiMAX (Worldwide Interoperability for Microwave Access) is a wireless communications standard designed to provide 30 to 40 megabit-per-second data rates, with the 2011 update providing up to 1 Gbit/s for fixed stations. The name "WiMAX" was created by the WiMAX Forum, which was formed in June 2001 to promote conformity and interoperability of the standard. The forum describes WiMAX as "a standards-based technology enabling the delivery of last mile wireless broadband access as an alternative to cable and DSL"
Wireless Sensor Network (WSN)	Spatially distributed autonomous devices (nodes) using sensors to cooperatively monitor physical (such as, acceleration, strain) or environmental conditions.

EXECUTIVE SUMMARY

RECONASS aims to provide a monitoring system for constructed facilities that will provide a near real time, reliable, and continuously updated assessment of the structural condition of the monitored facilities after a natural or manmade disaster. The above assessment will be seamlessly integrated with automated, near real-time and continuously updated assessment of physical damage, loss of functionality, direct economic loss and needs of the monitored facilities and will provide the required input for the prioritization of their repair.

This deliverable D8.1 represents the initial/preliminary plan for the use of the foreground and it will act as a supporting document containing guidelines and suggestions for project partners on potential exploitation opportunities. The deliverable proposes ways in which the project partners can benefit from the projects results; identifying risks preventing market deployment (and success) and how they can be overcome.
The full and final "Plan for the use of the foreground" deliverable D8.3 will be produced at month 42 of the project and will provide a more comprehensive plan and strategy for the exploitation of project results given that by this time there will be a clearer understanding of what results have actually been achieved during the project. This will be in the form of a comprehensive analysis of the overall exploitable project results, as well as past and future activities aimed at using and sharing foreground generated by the project consortium.
Both this initial plan and the later "Plan for the use of the foreground" are focused on ensuring that risks preventing market deployment and success are identified and addressed.

The above focus is inherited from the objectives of work package 8 (WP8) within the RECONASS project, which defines the related approaches aimed to guarantee a proper diffusion of knowledge and project results as well as secure maximum impact. Within the RECONASS project structure, WP8 is responsible for the 'Exploitation of Project Results and Management of Intellectual Property' while receiving contributions from the other work packages. In that sense the objectives of this work package covered by this deliverable are to:

- file for patents for the proposed local positioning tags and communication system
- create awareness of the project results within the Civil Protection administrations and the Security organizations in the EU and abroad
- develop the strategic approach, define the appropriate business plan and elaborate a suitable market model which can support the perspective of commercialization of the project results
- prepare support products, including documentation, in a form that can be understandable and accepted by potential users, help in technology transfer and provide necessary advice and support

In line with the WP8 objectives, this deliverable D8.1 document reviews the overall RECONASS system resulting from the project and the various sub-systems/components that make up the overall system. As part of this it outlines the various project partners that are responsible for what sub-systems/components and the respective ownership rights attributed to each sub-system/component.
Then the current and future clustering activities proposed by the project consortium in order to establish links with other relevant projects and initiatives working on security, crisis management and recovery issues within the EU (both national and Europe-wide) and globally is reviewed. Following this, an initial exploitation and route to market plan is proposed (including how use of foreground knowledge will be transferred to end-users), which will be revised in D8.3 as a result of specific discussion and input from project partners based on specific development outcomes through the course of the project. The deliverable D8.1 document will then summarise the proposed target market segments, any potential risks to market success and how it can be overcome.
As this deliverable D8.1 document is meant to represent a preliminary plan for the use of the foreground, hence most the proposed plans and strategy will be summaries and based on best estimates with a more comprehensive plan and strategy detailed in the later deliverable D8.3 document.