Deliverable

D8.2 Update PEDR

Deliverable information	
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Summary

PEDR is our master plan to maximise the demonstrable, long-term socio-economic impact and to achieve a measurable increase in the resilience of our societies against the threat of earthquakes. A set of measures, metrics, and formats has been established to promote RISE activities and define their success.

For quantitative measurements, the following metrics are considered: website users, Twitter followers, newsletter subscribers, publications, and number of participants of stakeholder exchange. For the qualitative impact, we collaborate closely with the projects work package leaders to investigate individual impact of each WP with regards to science, society, technology, and economy.

They are described in detail in the D8.1 PEDR (M3). PEDR is a dynamic document and will be updated annually throughout the project. This document is the second PEDR deliverable, which is the updated PEDR (D8.2, M12). We will have another updated PEDR in M24.

1.   Stakeholders and end-users

Exploitation and dissemination are indispensable to enable and ensure knowledge transfer. This includes interaction with industrial partners, governmental organizations, data and services providers, scientific community, general public and media. Different communication and dissemination measures are used for different target groups. The following table indicates the relevance of different communication and dissemination measures for the main stakeholders and end-users of RISE outputs.

	INTERNAL COMMUNICATION	INFORMATION ABOUT ACCESS TO DATA & SERVICES	WORKSHOPS	SCIENTIFIC PUBLICATIONS	SCIENTIFIC SUMMARIES	PROJECT NEWS	DELIVERABLES
PROJECT PARTICIPANTS	x	x	x	x	x	x	x
EC		x		x		x	x
DATA AND SERVICE PROVIDERS		x					
GOVERNMENTAL ORGANIZATIONS		x			x		
SCIENTIFIC AND ENGINEERING COMMUNITY		x		x	x	x	
INDUSTRY		x	x		x	x	
GENERAL PUBLIC AND MEDIA		x			x	x	

Table 1. Relevance of different communication measures for main target groups of RISE

According to their needs and interest RISE is developing, offering, and promoting different products and services as well as support knowledge exchange.

2. Internal communication activities

The internal communication targets project members and facilitates cooperation as well as organization. The Alfresco intranet was established to provide a shared workspace and calendar. Another main communication tool is the internal newsletters, which are distributed four times a year. The internal newsletters targets project members and intend to strengthen RISE internal communication. A typical internal newsletter contains information related but not limited to:

- Organizational matters
- WP updates
- Section "People of WP..."
- Past and Upcoming Meetings
- Miscellaneous project information
- Calendar

Until now, three internal newsletters have been released. An internal newsletter will be published every 4 months during the RISE project. With an opening rate of 54%, the internal newsletter is read by the majority of the project members. All internal newsletters are accessible on the Alfresco Intranet for the project members. The next internal newsletter is planned for November 2020.
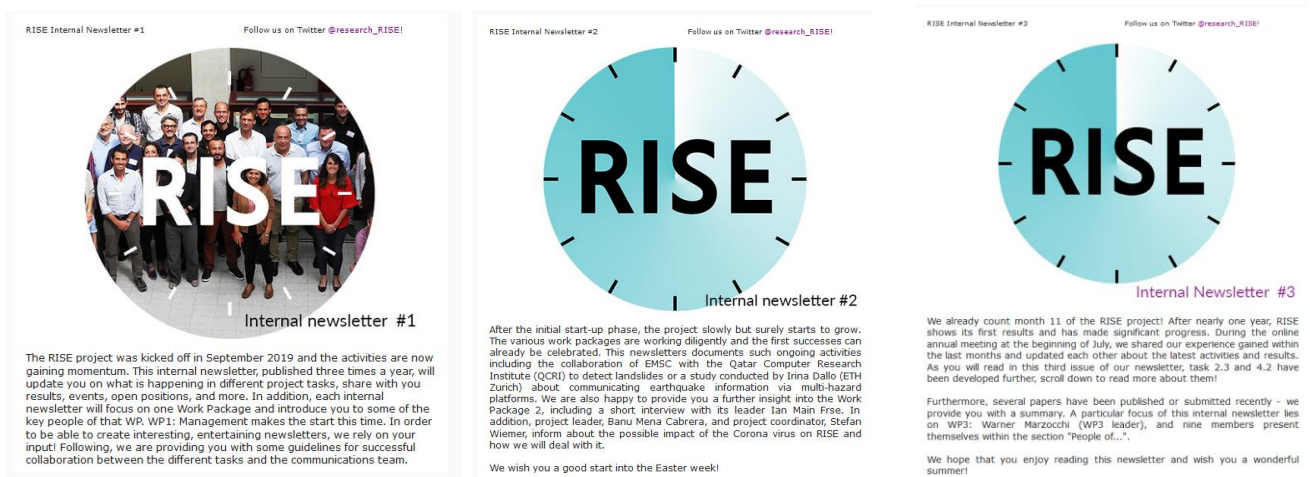
Figure 1. Screenshot of the released internal newsletters

3.   External communication activities

We use a number of communication tools targeted at different audiences, such as project website, external newsletter, social media (e.g. Twitter), best practice reports, special issue publications, training workshops. The tables below summarize the main communication activities and their target audiences (see chapter 3.5).

Some of these communication tools are already established for the RISE project (project website, newsletters, twitter account) and others will be formed as the project evolves and the first set of results are achieved (good practice reports, conference presentations etc.).

An introduction to the RISE website and the first newsletter can be found in the deliverable D.10 (External newsletter released, due M6).

3.1   RISE website and twitter account

RISE website was launched in September 2019 by WP8. External website is used for sharing relevant project information, dissemination materials and linking to the internal website. The RISE website promotes visibility and transparency towards stakeholders. It contains a number of sections including news and events, project results, reports, publications, deliverables. The full content of the website is ready and accessible on www.rise-eu.org. The website is regularly updated by WP8. Below is a screenshot of the current RISE homepage.
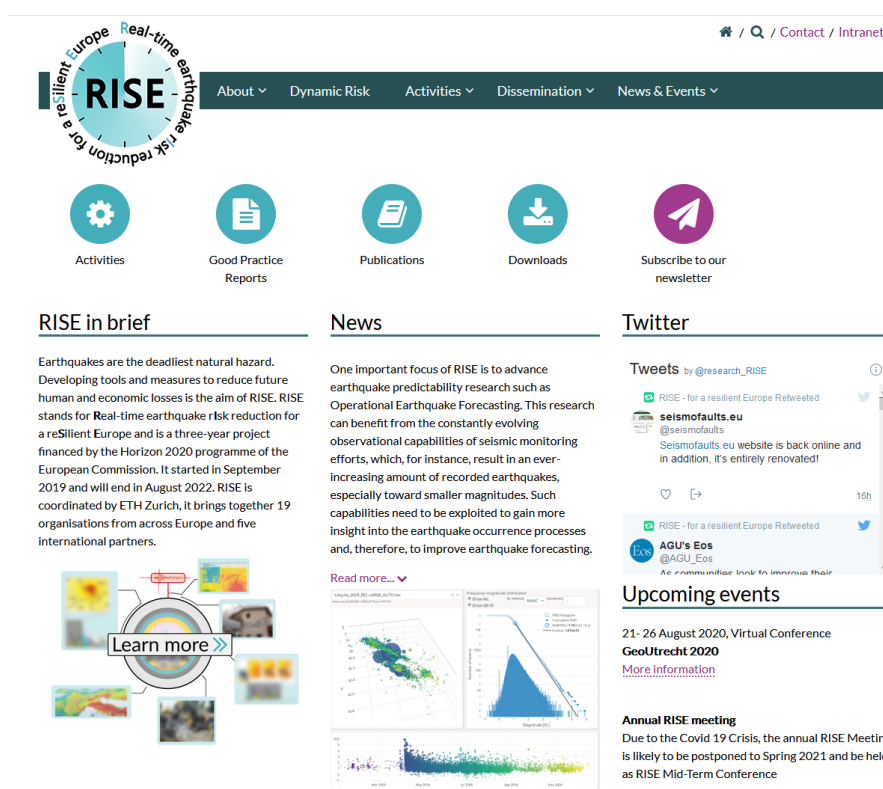
Figure 2. Screenshot of RISE Website

The number of website visitors has risen steadily since the project started. Below you will find an overview of the web statistics.

Month	Number of unique website visitors
September 2019	130
October 2019	110
November 2019	213
December 2019	185
January 2020	225
February 2020	401
March 2020	378
April 2020	443
May 2020	495
June 2020	397
July 2020	477
August 2020	439 (28.08.2020)

Table 2. Web statistic RISE website

Additionally, we created a Twitter account, where we share project updates, interesting news, available open positions, etc. RISE Twitter account is @research_RISE. RISE Communications team maintains both the website and the twitter account, gathers the relevant information and publishes them. Currently, we can count 161 followers on the RISE Twitter account. Until now, 95 tweets (incl. retweets) have been published.

3.2   RISE external newsletters

RISE external newsletters target all interested stakeholders and aims at communicating project updates and progress. It will cover information on WPs, meetings, calendar and any miscellaneous topic that RISE community wants to share with the public. Each issue will cover a different topic of RISE research and will release information suitable for non-expert readers. An external newsletter will be published once a year during RISE project. So far, one external newsletter has been published, the second is planned for September 2020. RISE newsletters are published by WP8.

The first external newsletter (released March 2020) contained the following topics:

- Welcome message of the project leader
- Two articles within the section "A closer look"
  - "Towards optical sensing of ground motion for improved seismic hazard assessment"
  - "What is Operational Earthquake Forecasting?"
- The concept of "Dynamic Risks"
- Information about ESC2020 in Corfu

The first external newsletter was sent to 129 recipients, of which 55% opened the newsletter. All external newsletter can be found on the RISE website. Since the beginning of RISE, the number of audience is continuously increasing (see Table 3).

Month	Number of subscribers (external NL)
September 2019	1
October 2019	6
November 2019	83
December 2019	85
January 2020	91
February 2020	125
March 2020	133
April 2020	136
Mai 2020	141
June 2020	145
July 2020	148
August 2020	149 (28.08.2020)

Table 3. Audience growth RISE external newsletter

3.3   Good practice reports

RISE will compile a series of at least five good practice reports based on RISE deliverables. They will be compiled into a homogenized online library of open access reports and will be made available for browsing on the RISE website. Each good practice report will undergo an internal peer review. The reports will be written with an end-user perspective in mind. As they form an important legacy of RISE, planning already started.

We will bring together about 170 of the leaders from around the world in the domain of real-time risk assessment for an exchange of the state-of-the-art and future directions.

3.4   Presentations and publications

Publications in high-quality peer-reviewed international journals or conference proceedings remain a major output of RISE that will have a lasting impact on the physical sciences, engineering and social science communities. RISE brings together many of the most productive and most-cited scientists in their respective domains, and we anticipate that no less than 100 publications will result from the RISE activities. We will also sponsor at least three dedicated sessions at international conferences. Until M12, 13 publications have been released:

- Bondár, I., Steed, R., Roch, J., Bossu, R., Heinloo, A., Saul, J., and Strollo, A. (2020), "Accurate locations of felt earthquakes using crowdsource detections", Front. Earth Sci., 8, 272, doi: 10.3389/feart.2020.00272
- Bossu, R., Fallou, L., Landès, M., Roussel, F., Julien-Laferrière, S., Roch, J. and Robert Steed. (2020), "Rapid Public Information and Situational Awareness After the November 26, 2019, Albania Earthquake: Lessons Learned From the LastQuake System", Front. Earth Sci., doi: 10.3389/feart.2020.00235
- Crowley, H., Silva, V., Kalakonas, P., Martins, L., Weatherill, G., Pitilakis, K., Riga, E., Borzi, B., Faravelli, M. (2020), "Verification of the European Seismic Risk Model (ESRM20)", 17WCEE Conference paper.
- Dallo, I., Stauffacher, M. and Marti, M. (2020), "What defines the success of of maps and additional information on a multi-hazard platform?", International Journal of Disaster Risk Reduction, Volume 49, doi: 10.1016/j.ijdrr.2020.101761
- Finazzi, F. (2020), "The Earthquake Network Project: A Platform for Earthquake Early Warning, Rapid Impact Assessment, and Search and Rescue", Front. Earth Sci., 8, 243, doi: 10.3389/feart.2020.00243
- Fallou, L., Bossu, R., Landès, M., Roch, J., Roussel, F. and Steed, R. (2020), "Citizen Seismology Without Seismologists? Lessons Learned From Mayotte Leading to Improved Collaboration", Frontiers in Communication, Volume 5, doi: 10.3389/fcomm.2020.00049

- Gulia, L., Wiemer, S. and Vannucci, G. (2020), "Pseudoprospective Evaluation of the Foreshock Traffic-Light System in Ridgecrest and Implications for Aftershock Hazard Assessment", Seismological Research Letters, doi:10.1785/0220190307
- Iervolino, I., Chioccarelli, E., Suzuki, A. (2020), "Seismic damage accumulation in multiple mainshock–aftershock sequences", Earthquake Engng Struct Dyn. 2020;49:1007–1027. doi: 10.1002/eqe.3275
- Mancini, S., Segou, M., Werner, M.J. and Parsons, T. (2020), "The Predictive Skills of Elastic Coulomb Rate-and-State Aftershock Forecasts during the 2019 Ridgecrest, California, Earthquake Sequence", Bulletin of the Seismological Society of America, 110 (4): 1736–1751, doi: 10.1785/0120200028
- Rinaldi, A.P., Improta, L., Hainzl, S., Catalli, F., Urpi, L. and Wiemer S. (2020), "Combined approach of poroelastic and earthquake nucleation applied to the reservoir-induced seismic activity in the Val d'Agri area, Italy", Journal of Rock Mechanics and Geotechnical Engineering, 12 (4), 802-810, doi: 10.1016/j.jrmge.2020.04.003
- Savran, W.H., Werner, M.J., Marzocchi, W., Rhoades, D.A., Jackson, D.D., Milner, K., Field, E. and Michael A. (2020), "Pseudoprospective Evaluation of UCERF3-ETAS Forecasts during the 2019 Ridgecrest Sequence", Bulletin of the Seismological Society of America, 110 (4): 1799–1817, doi: 10.1785/0120200026
- Zhang, L., Werner, M.J. and Goda, K. (2020), "Variability of ETAS Parameters in Global Subduction Zones and Applications to Mainshock–Aftershock Hazard Assessment", Bulletin of the Seismological Society of America, 110 (1): 191–212, doi: 10.1785/0120190121
- Zhang, Y., Fan, J., Marzocchi, W., Shapira, A., Hofstetter, R., Havlin, S. and Ashkenazy, Y. (2020), "Scaling laws in earthquake memory for interevent times and distances", Phys. Rev. Research 2, doi: 10.1103/PhysRevResearch.2.013264

3.5 Overview of the main external communication activities

RISE website www.rise-eu.org	
Responsibility	ETH Zurich
Task	Setup and updates of website www.rise-eu.org. The website is the main external communication tool of RISE.
Function	Access to project information, current developments and achievements, contact and other useful information
Target groups	Everyone
Success factor	Website traffic, number of page views, document downloads, and feedback received
Tool	OpenCMS

External newsletter	
Responsibility	ETH Zurich
Task	Regularly distribution (month 3, 12, 24, 36) of an external newsletter: create template, plan content, edit newsletter
Function	Provide deeper insights to the project (compared to news on the website), spread knowledge, inform about achievements of RISE
Target groups	EC, data and service providers, governmental organizations, scientific and engineering community, industry, interested public.
Success factor	Growing of mailing list, opening and click rate, feedback
Tool	Mailchimp

Social media	
Responsibility	ETH Zurich
Task	Post project news and relevant information about related projects (e.g. conferences). Minimum: liking and retweeting updates once a week. Follow accounts from partners and related projects

Function	Visibility; inform when RISE participants give talks in conferences, publish a paper, or had a successful collaboration
Target groups	Data and service providers, governmental organizations, scientific and engineering community, industry
Success factor	Followers, frequency of posts
Tool	Twitter

Best practice reports	
Responsibility	ETH Zurich
Task	Editing and designing good practice guidelines, coordinating best practice reports At least five good practice reports will be compiled based on RISE deliverables and be made available to browse and download on the RISE and EFEHR websites. The best practice reports will be updated and continued even after the project as part of EPOS.
Function	Visibility, provide access to preliminary results
Target groups	Governmental organizations, scientific and engineering community
Success factor	Number of publications
Tool	Word template

Training workshops	
Responsibility	ETH Zurich
Task	Offering three training workshops to selected groups of stakeholders: • **Young scientists in interdisciplinary and dynamic risk assessment**: 3-day workshop presenting introductions to the methodologies and tools. Hosted in the form of a summer or winter school • **End-users**: two-day workshop focused on good practice for end-users from governmental and regulatory agencies, including civil defence offices and national services from around Europe. The focus will be to introduce capabilities and limitations of real-time earthquake risk assessment as a tool for more resilient societies • **Industry**: A one-day workshop focused on exploitation of business opportunities and applications with users from industry. This includes hardware/sensor manufacturers, software and app developers, and insurance companies.
Function	Visibility
Target groups	Scientific and engineering community
Success factor	Number of workshops, number of participants

Presentations at conferences	
Responsibility	ETH Zurich, all
Task	Connect with scientists from other fields; dissemination of scientific results
Function	Visibility
Target groups	Scientific and engineering community
Success factor	Increased collaboration, growing newsletter mailing list

Special issue	
Responsibility	ETH Zurich
Task	Towards the end of the project, a special issue will be created in a journal (to be determined) to demonstrate and summarize all of the project's results and progress. The special issue could either be a full RISE-only issue or an issue dedicated to a RISE-related topic where we provide inputs from each work package.
Function	Provide information to all relevant stakeholder, visibility
Success factor	Number of contributions, depending on journal: number of reads
Target groups	Scientific and engineering community

Final conference	
Responsibility	ETH Zurich
Task	Organise the final conference, designed as a public 2.5-day workshop in the tradition of other acclaimed workshops previously organised by the coordinator of RISE. We will bring together about 170 of the leaders from around the world in the domain of real-time risk assessment for an exchange of the state-of-the-art and future directions.
Function	Visibility, provide access to results
Target groups	EC, governmental organizations, scientific and engineering community, industry
Success factor	Number of participants, number of presentations

Table 4. Overview external communication activities

4.   RISE products and services

RISE will develop, establish, and provide numerous products and services. To unfold their potential, they need to be relevant for interested stakeholders and advertised within those communities. The latter is ensured in the form of different external communication measures and activities described previously.

The following products and services will be made available until the end of the project. Each of these achievements will be documented in a dedicated milestone or deliverable.

	Short description of products and services provided by RISE	Relevant milestones and deliverables
OEF output format testing capabilities	OEF testing capabilities already exist (CSEP 1); operation capabilities are under development (RT-RAMSIS). Input and output parameters and formats will be homogenized, extended, implemented in the respective platforms, and documented for model contributors.	MS 22: OEF output format for testing 8.7: EU forecast testing centre operational
Description of standards for dynamic risk services	A whitepaper will be collaboratively designed describing preferred technical and outreach solutions.	MS 56: Community agreement on requirements and technical baseline for dynamic risk service standardisation D. 8.4: Description of standards for dynamic risk services MS 57: First version of standardised exchange protocol released
Harmonized platform for OEF forecasts and ensemble models	This task brings together the achievements made in other RISE work packages namely WP3 and WP6. It builds on the different preceding milestones. Suggested to extend the currently developed RT-RAMSIS platform for time-dependent induced seismicity to time-dependent natural seismicity	D 8.6: Harmonised platform for OEF forecasts and ensemble models
RLA software; including operational setup for Europe	Integration of Shakemap (extended for probabilistic path effects) with OpenQuake Risk stage.	D 8.8: EU RLA service operational
Establishing operational capability of services	Ensuring operational service for the EU forecasting centre, RLA, and OEF. This sets the basis for being able to establish dynamic risk services within EPOS and in Italy and Switzerland.	MS 18: Finalisation of the whitepaper and selection of the preferred technical solutions D 8.5: Report on the sustainable operation of dynamic risk services within EPOS
OEF infrastructure and services set up for Switzerland and Italy	Operative set-up of the " Harmonized platform for OEF forecasts and ensemble models", amended with public displays for the results, and (to be decided) threshold based alerting	D. 8.9: OEF services in Italy, Switzerland and Europe wide operational
Operational dynamic risk services in Italy and Switzerland	In each of these countries, a dynamic risk service has to be made available until the end of the project.	MS 43: Dynamic risk services for Switzerland operational

Table 5. RISE products and services

5.   Stakeholder panels

The knowledge generated as well as the products and services developed within RISE are only useful and successful when they meet future end-users needs. We aim at translating RISE outputs and deliverables into tangible products and services, useful for and used by a wide range of stakeholders. While the external communication activities mainly focus on informing the RISE community, our stakeholders and end-users; the stakeholder panel aims at establishing a dialogue with exponents of these communities.

The following steps have been taken so far:

- Italian Civil Protection Agency is contacted by WP3 leader, Warner Marzocchi.
  The Italian Civil Protection Agency responded positively to the invitation and they are keen to take part in RISE Stakeholder Panel.
- ARISTOTLE-ENHSP is contacted by the WP6 leader Helen Crowley.
  Alberto Michelini from ARISTOTLE-ENHSP will represent the interests of ERCC (Emergency Response Coordination Centre) They agreed on their participation in RISE SP.
- Guy Carpenter (reinsurance brokerage company) has been contacted by Helen Crowley. They agreed on their participation.
- Disaster Risk Management Knowledge Centre (DRMKC) is contacted and JRC (Joint Research Centre) is invited. They agreed on their participation.
- Cantonal Civil Defence, Basel had been contacted by Stefan Wiemer for participating in the SP and he confirmed their participation.

Although we have some delays due to Covid-19, we are working on expanding the SP by contacting more institutions. A subgroup of the Stakeholder Panel will form the National Swiss Stakeholder Board. The following institutions are likely to be part of the SP, but have not yet been confirmed.

- Swiss Civil Protection Agency
- Swiss Federal Eailways (SBB)
- Federal Office of Energy
- Cantonal Civil Defence Valais
- Swiss Nuclear
- Swiss National Building Insurance
- Schindler Elevators

SP will meet during the next RISE Meeting. For the moment the date of this meeting is uncertain due to Covid-19.

The format of all stakeholder panels will be a workshop, where the different products and services developed within RISE will be presented and discussed. Besides technical aspects, social acceptance and communications will be in the focus of the dialogue. Therefore, RISE will make use of its interdisciplinary capabilities to organize and conduct these workshops.

6. Overview Key performances indicators

6.1 Quantitative key performance indicators

To define the impact of RISE in a quantitative way, different key performance indicators are assessed. A suitable metric highlights a specific project contribution. In combination, the metrics chosen shall reflect the project's impact in its entity. In the following, these metrics as well as targeted impact goals to be reached until M12, M24, and M36 are listed as well as the current numbers of M12.

Key performance indicator(s)	Quantitative goal	M6	M12
Number of unique website visitors	Monthly average: 500 M12:6'000 total unique visitors M24: 12'000 total unique visitors M36: 18'000 total unique visitors	23 (Aug. 19) 130 (Sep. 19) 116 (Oct. 19) 213 (Nov. 19) 185 (Dec. 19) 225 (Jan.20) Total: 892	23 (Aug. 19) 130 (Sep. 19) 116 (Oct. 19) 213 (Nov. 19) 185 (Dec. 19) 225 (Jan.20) 401 (Feb. 20) 378 (March 20) 443 (Apr 20) 495 (May 20) 397 (June 20) 477 (July 20) 439 (28 August 2020) Total: 3'922 (28.08.2020)
Number of Twitter followers	M12: 100 followers M24: 250 followers M36: 300 followers	74 followers (12.02.2020)	161 followers (28.08.2020
Number of external newsletter subscribers	M12: 100 subscribers M24: 200 subscribers M36: 250 subscribers	Intern: 81 Extern: 9 Total: 92 (12.02.2020)	Intern: 82 Extern: 67 Total: 149 (28.08.2020)
Number of publications in scientific journals	M12: 20 publications M24: 30 publications M36: 100 publications	0	13
Participants of stakeholder exchange	Until M36: Workshops: 3 Presentations: 50 Other exchange opportunities: 5	0	0

Table 6. Overview key performance indicators

6.2   Qualitative key performance indicators

This section contains reports from several work package leaders, describing the impact achieved during the last reporting period with regards to science, society, technology, and economy. As this deliverable is due in M12, the work on some WPs are ongoing, and the impact will be more evident at a later stage of the project. Therefore, we will provide a more detailed update in the next PEDR, D8.3 "Update PEDR (M24)".

WP	Summary
2	The work in this WP is ongoing, and the impact will be more evident at a later stage of the project; therefore, we will provide a more detailed update in the next PEDR.
3	Since the RISE kickoff, researchers of WP3 have made notable progress in the field of earthquake forecasting. With a focus on developing new and extending existing approaches to model seismicity, some models have already demonstrated to improve forecasting performance. Because all modeling approaches rely on earthquake catalogs as input, exploring catalogs is another essential aspect of WP3. For instance, statistical analyses of catalogs allowed testing new hypotheses and finding new properties of earthquake behavior. It was also demonstrated that high-quality catalogs with an increased amount of small earthquakes pose new challenges and certain limits for modeling seismicity; their apparent advantage cannot always be taken for granted. WP3 also refocused on the physics-based modeling of seismicity, which is an evolving field and could recently demonstrate to be at least comparable, or even better, than a conventional statistical model. Since April 2020, the physics-based forecast community gathered regularly in virtual meetings, which quickly attracted international researchers outside of the RISE community. WP3 also collaborated with WP7 to guarantee that all developed models and hypotheses are eventually properly tested and evaluated. The achieved progress in WP3 advances operational earthquake forecasting and contributes to an improved assessment of the dynamic risk.
4	Since the beginning of the RISE project, WP4 achieved different results in the field of risk and resilience assessment for earthquake early warning, as well as short- and long-term risk management during and after seismic sequences. In the context of rapid loss assessment and operational earthquake loss forecasting (OELF) services for Europe, researchers of WP4 developed static and time-invariant exposure models for 45 countries and time-invariant vulnerability models representing over 500 building classes. These models allow to implement OELF for Europe (in collaboration with WP3), which also serves for a rational decision making (WP8). With the aim to improve OELF, WP4 is currently working on time-variant exposure models (in collaboration with WP6 and WP7). Furthermore, state-dependent fragility functions for the different building classes are being developed. These will allow to include damage accumulation into the vulnerability models, profiting of the Markovian approach described in Iervolino et al. (2020), which has been developed within the RISE activities. In the context of the activities concerning the development of near real-time recovery forecasting, another objective, addressed in the first year, has been to extend the OpenQuake engine with a module that contains the capacity to capture the evolution of the recovery state of the built inventory over time. Also, recovery functions from different sources (e.g., SYNER-G, HAZUS) were collected to enable recovery predictions. A compositional demand/supply framework for resilience quantification was implemented and the sensitivity to its main parameters was assessed. Other important activities of WP4 concern the data-driven structural health monitoring. The main objective pertains the assessment of the feasibility of an automated 'smart'-tagging of earthquake-hit buildings as safe or unsafe for users. In fact, the replacement of lengthy and potentially subjective visual-inspection campaigns with data-driven tagging offers the potential for approximate, yet rapid, assessment of the building state in the immediate aftermath of an earthquake. Thus, with the purpose of extracting damage indicators, during the first 12 months of the project, nonlinear time-history simulations have been performed, data from shake-table tests conducted in Italy and the US, as well as from a monitored building in Japan, have been secured and measurement campaigns have been conducted in multiple buildings (located in Switzerland) - while under demolition - in order to achieve the key objective of identifying damage-sensitive features for successful damage detection. Recently, OGS (Istituto Nazionale di Oceanografia e di Geofisica Sperimentale) has been involved into the RISE project to investigate opportunities for monitoring damage accumulation in real structures in order to provide data-driven feedback for existing frameworks of state-dependent vulnerability. With the aim to develop location- and structure-specific Earthquake Early Warning (EEW) algorithms for real buildings, in the last year WP4 has collected dataset consisting on earthquake records from the EEW stations and instrumented buildings in Istanbul.

	Finally, the evaluation of the seismic risk reduction measures and tools developed in RISE, in terms of their cost and benefit, is also part of WP4 activities. In this context, the development of a framework for cost-benefit analysis has been started and is currently on-going. Results of such an analysis are supposed to have a strong impact on economy and society, as they should support a dialogue with end-users such as decision makers and the public. References Iervolino I, Chioccarelli E., Suzuki A.(2020).Seismic damage accumulation in multiple mainshock-aftershock sequences. Earthquake Engineering and Structural Dynamics, 49:1007-10270.1002.
5	The work in this WP is ongoing, and the impact will be more evident at a later stage of the project; therefore, we will provide a more detailed update in the next PEDR.
6	WP6 has the main objective of piloting the research and developments made in the previous WPs at specific sites across Europe, in order to demonstrate the improvements made upon current capabilities. Specifically, we are: • Demonstrating how the use of big data collected through innovative technologies at the building-level can be used for critical risk mitigation services including RLA and OELF. • Focusing on applications that demonstrate the chain from earthquake predictability to OELF and RLA at regional and national levels. • Developing a user-centric dynamic risk framework for Switzerland. • Working towards the development of services for RLA, EEW and OELF at a European level. Low cost medium quality MEMS sensors have been developed (in WP2) and have now been deployed in a number of buildings by QuakeSaver. Examples include the Tokyo Metropolitan Government Building (16 QuakeSaver strong-motion sensors were installed in March 2020) and the Narita International Airport (16 QuakeSaver strong-motion sensors installed in May 2020). We have also identified a number of buildings that are already being monitored by RISE partners with both temporary and permanent sensors in buildings (City Hall in Grenoble, Sapphire Tower in Istanbul and a hotel in Montenegro). We have also made plans to install QuakeSaver sensors in some of these buildings for calibration purposes. Testing frameworks for Operational Earthquake Loss Forecasting (OELF) at the national scale (Italy) and Rapid Loss Assessment (RLA) at the regional scale (Europe) have been developed with preliminary versions of all of the necessary components (i.e. operational earthquake forecasts (OEF), ShakeMaps, time invariant exposure models, time invariant vulnerability models). These components will be updated (and time variance will be incorporated) as developments in the other work packages progress. WP6 does plan to involve the Stakeholder Panel in reviewing and providing feedback on the demonstration activities.
7	The work in this WP is ongoing, and the impact will be more evident at a later stage of the project; therefore, we will provide a more detailed update in the next PEDR.