Early Recognition, Monitoring and Integrated Management of Emerging, New Technology Related, Risks
iNTeg-Risk
Grant agreement number: CP-IP 213345-2

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Early Recognition, Monitoring and Integrated Management of Emerging, New Technology Related Risks

FP7/NMP – Nanosciences, Nanotechnologies, Materials and new Production Technologies:
Grant no. CP-IP 213345-2

Coordination: EU-VRi European Virtual Institute for Integrated Risk Management EEIG, A. Jovanovic
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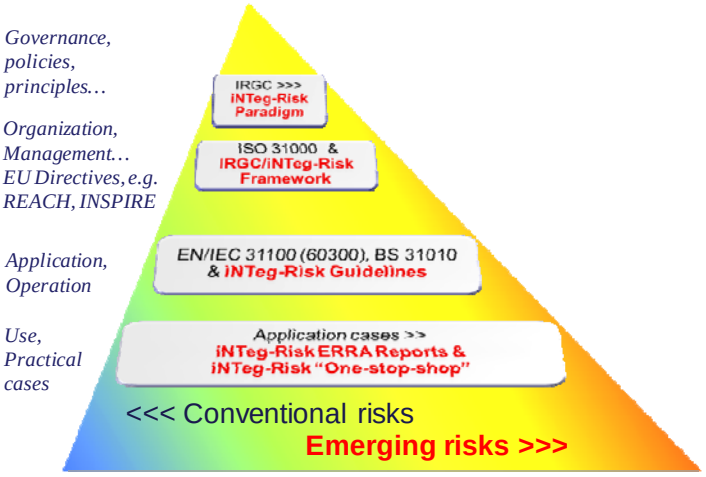
Start/End: Dec. 1, 2008 to May 31, 2013
Budget: ~ 19.3 million €

iNTeg-Risk Paradigm & Framework



Partners

Main Beneficiaries" (59, EU-VRi indicates an EU-VRi member):

1 EU-VRi **EU-VRi** European Virtual Institute for Integrated Risk Management, Germany
2 EU-VRi **EDF** Electricité de France, France
3 **GDF SUEZ** France
4 **Definiens AG** Germany
6 EU-VRi **MERL** Materials Engineering Research Lab. Ltd, UK
7 EU-VRi **TÜV** SÜD Industrie Service GmbH, Germany
9 EU-VRi **R-Tech** Steinbeis Advanced Risk Technologies GmbH, Germany
10 **Iberdrola** S.A., Spain
11 **Atos Origin** Sociedad Anónima Española, Spain
12 **Eni Norge** Eni Group, Norway
13 EU-VRi **D'Appolonia** S.p.A., Italy
14 EU-VRi **MIT** Management Intelligenter Technologien GmbH, Germany
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24 **Eurogas-GERG** The European Association of the Natural gas Industry, Belgium
26 **Enagás** S.A., Spain
27 EU-VRi **INCDPM** Alexandru Darabont, National Research and Development Institute on Occupational Safety, Romania
28 EU-VRi **SWISSI** Swiss Institute for the Promotion of Safety and Security, Switzerland
29 EU-VRi **KMM-VIN** European Virtual Institute on Knowledge-based Multifunctional Materials AISBL, Belgium
30 EU-VRi **INERIS** Institut National de l'Environnement Industriel et des Risques, France
31 EU-VRi **CEA** Commissariat à l'Energie Atomique, France
32 EU-VRi **BAM** Ba. für Materialforschung und -prüfung, Germany
33 EU-VRi **USTUTT** Universität Stuttgart (ZIRN), Germany
34 EU-VRi **LEIA** Fundación Centro de Desarrollo Tecnologico, Spain
37 EU-VRi **TU Crete** Technical University of Crete, Greece
39 EU-VRi **SINTEF** Stiftelsen, Norway
40 EU-VRi **DTU** Technical University of Denmark, Denmark
41 EU-VRi **VTT** Technical Research Centre of Finland, Finland
42 EU-VRi **BZF** Bay Zoltan Foundation for Applied Research, Institute for Logistics and Production Systems, Hungary
43 EU-VRi **Demokritos** National Center for Scientific Research, Greece
44 EU-VRi **IVF** Swerea IVF AB, Sweden
45 EU-VRi **VSB-TUO** Sc. Technicka Univerzita Ostrava , Czech Republic
46 EU-VRi **JSI** Jozef Stefan Institute, Slovenia

Basic idea and objectives

iNTeg-Risk is a large-scale integrating project aimed at improving the management of emerging risks, related to "new technologies" in European industry. This will be achieved by building new management paradigm for emerging risks as a set of principles supported by a common language, agreed tools & methods, and Key Performance Indicators, all integrated into a single framework. The project aim is to reduce time-to-market for the lead market EU technologies and promote safety, security, environmental friendliness and social responsibility as a trademark of the EU technologies. The project will improve early recognition and monitoring of emerging risks, seek to reduce accidents caused by them (estimated 75 B€/year EU27) and decrease reaction times if major accidents involving emerging risks happen.

Project structure and main planned achievements

The "EU response" proposed by the project will be based on 17 individual applications of new technologies like nano, H_2 technologies, underground storage of CO_2, new materials (ERRAs - Emerging Risk Representative Applications in EU Industry). The solutions will be generalized and used for the framework, which will be validated in a second application cycle. Overall solutions will be made available to the users in the form of the iNTeg-Risk "one-stop shop" for EU solutions addressing emerging risks. The solution will include issues of early recognition and monitoring of emerging risks, communication, governance, pre-standardization, education & training, dissemination, as well as new tools such as Safetypedia, Atlas of Emerging Risks, Reference Library, etc. The project involves leading EU industries and renowned R&D institutions. It is coordinated by the European Virtual Institute for Integrated Risk Management, the dedicated EEIG guaranteeing the sustainability of results after the project.

The project structure is a bottom-up one starting from the problems identified as representative (iNTeg-Risk ERRAs), over the development of the integrated/common approach and methods, towards the "one-stop-shop" containing solutions for different groups of stakeholders: from interested citizen, over students and concerned SMEs, to the scientists at academia or researchers in industry (each of them finding the information matching their respective interests). The subprojects in iNTeg-Risk, listed below, reflect the approach described above:

Subproject 1: Technology CASES: Identifying specific emerging risks and developing solutions to enter into the unifying framework, concept of ERRAs - Emerging Risk Representative industrial Applications

Subproject 2: CREATING AN INTEGRATED SCIENTIFIC & TECHNOLOGY FRAMEWORK: Emerging Risk Management Framework (ERMF): iNTeg-Risk New Paradigm, Methods & Tools for dealing with emerging Risks

47 **HSE-HSL** Health and Safety Executive, UK
48 **JRC** Commission of The European Communities Directorate General Joint Research Centre, Belgium
49 **CEN** European Committee for Standardization , Belgium
50 **RIVM** Rijksinstituut voor Volksgezondheid en Milieu, The Netherlands
52 **vfdb** German Fire Protection Association, Germany
53 **ARPC** Agenzia Regionale Protenzione Civile - Emilia Romagna, Italy
55 **ARMINES** Association pour la Recherche et le Développement des Méthodes et Processus Industriels, France
57 **TUKE** Technical University of Kosice , Slovakia
58 **FTN** University of Novi Sad, Serbia
59 **EKON** Modeling Software Systems Ltd., Israel
62 **SP** Technical Research Institute of Sweden , Sweden
63 **STUVA** Studiengesellschaft. für unterirdische Verkehrsanlagen e. V., Germany
64 **UNIBO** Alma Mater Studiorum Università di Bologna, Italy
65 **UNIPD** University of Padua, Italy
66 **POLIMI** Politecnico di Milano, CMIC Dpt, Italy
67 **UNIRM** Dipartimento Ingegneria Chimica Materiali e Ambiente, Sapienza Università di Roma, Italy
68 **CNR-IRC** CNR Istituto di Ricerche sulla Combustione, Italy
69 **UNIPI** University of Pisa, Italy
70 **IQS**, Institut Químic de Sarrià, Spain

"Article 10 partners" (18):

2B, 2B Consulenza Ambientale, Italy; **SHB**, Steinbeis Hochschule Berlin GmbH, Germany; **EUR**, Erasmus University Rotterdam, Netherlands; **OttoUNI**, Otto-von-Guericke-Universität Magdeburg, Germany; **BristolUNI**, University of Bristol, UK; **STC**, Steinbeis Technologie-transfer GmbH & Co. KG, Germany; **ELITE**, European Laboratory for intelligent Techniques Engineering, Germany; **DIN**, German Institute for Standardization e. V., Germany; **CrisisTox**, CrisisTox Consult, Netherlands; **IMIM**, Institute of Metallurgy and Materials of Polish Academy of Sciences, Poland; **IPPT**, Instytut Podstawowych Problemow Techniki Polskiej Akademii Nauk, Poland; **IMR SAS**, Institute of materials research, Slovak Academy of Sciences, Slovakia; **MCL**, Materials Centre Leoben Forschung GmbH, Austria; **UK HPA**, UK Health Protection Agency, UK; **FOI**, Swedish Defense Research Agency, Sweden; **FIOH**, Finnish Institute of Occupational Health, Finland; **BfR**, Bundesinstitut für Risikobewertung, Germany; **ENSMP**, Ecole Nationale Supérieure des Mines de Paris, France

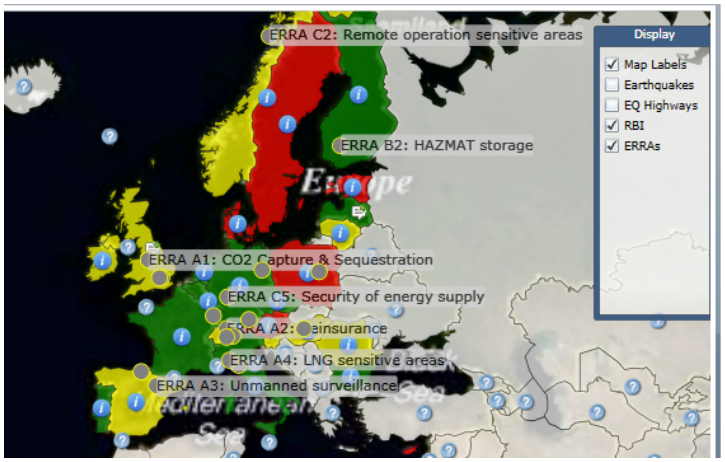
Subproject 3: APPLICATION, VERIFICATION & VALIDATION: European Network of Industrial Systems and Facilities for exploration of Emerging Risks (ENISFER); verifying SP2 results and validating the whole method

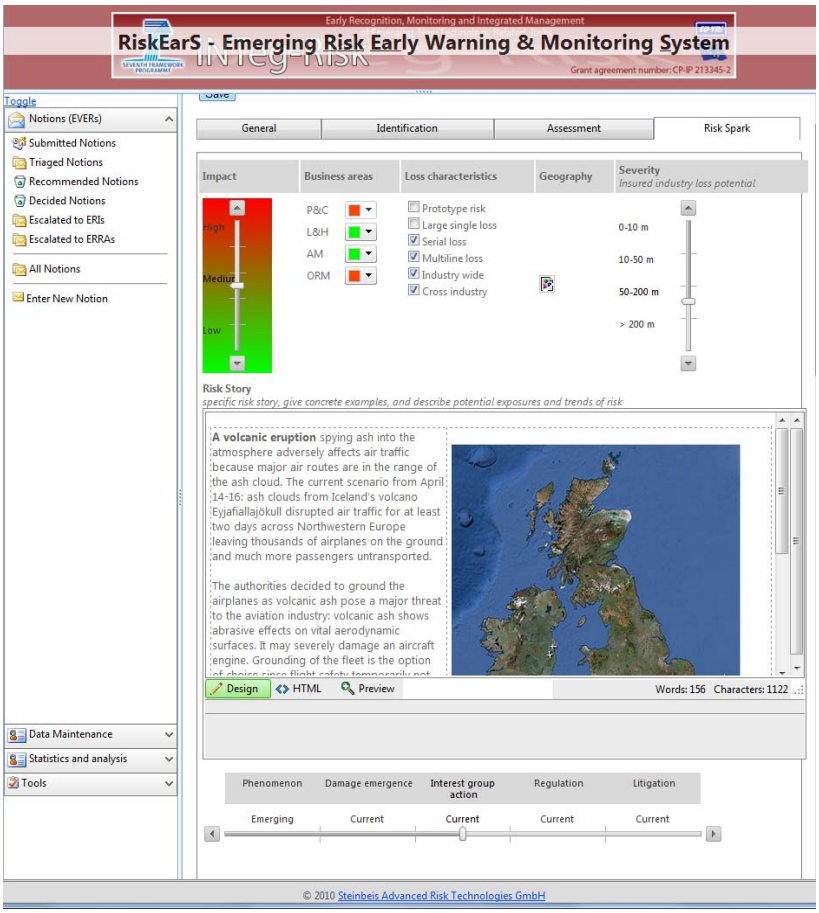
Subproject 4: DISSEMINATION ONE-STOP-SHOP: iNTeg-Risk integrated EU solution, the "iNTeg-Risk one-stop-shop" for solutions addressing emerging risks

Subproject 5: MAKING IT HAPPEN & ASSURING SUSTAINABILITY; MANAGING A LARGE COLLABORATIVE PROJECT – PROJECT MANAGEMENT & MORE: Managing iNTeg-Risk and creating its IT and "post-project" infrastructure

Main achievements so far

Currently the project approaches the end of the 2nd year of work by accomplishing the work on 17 ERRAs and entering the phase of their comparison and search for common features, as well as the integration in the 1-Stop-Shop of SP4 (below: ERRAs in Risk-Atlas).





In SP2 the iNTeg-Risk work has fully integrated the results of some recent and/or still running activities and projects such as standardization work ISO related to integrated risk management (ISO 31000), the IRGC Risk Governance Framework, the risk management systems developed in the financial world, in particular Basel II and Solvency II, the work done in/for World Economic Forum, the EU directive INSPIRE and the EU projects in the area of LCA (Life cycle Assessment).

According to the plan, SP3 is scheduled to start in 2011.

In SP4, the project has shown that already at this stage it can handle interesting issues like for instance

- the volcanic ashes and
- Gulf of Mexico spill

in 2010. The volcanic ashes were dealt with primarily within the RiskEarS module of 1-Stop-Shop (the Emerging Risk Early Warning & Monitoring System – see left figure). The system allows to collect notions of emerging risks (currently almost 600) coming from different sources, usually persons and/or organizations "of confidence", registered as the so-called iNTeg-Risk sentinels, i.e. professionals rated as credible sources of notions about emerging risks. Apart from storing data in the system, RiskEarS allows monitoring of the evolution of risks (e.g. from early notion to a litigation case), e.g. in the form of the so-called RiskSparcs.