



Security & Resilience – R&D

Outline



RINA

RINA R&D

Infrastructure Protection

Key Expertise and Services

R&D Reference Projects

Conclusions

Competence and Experience



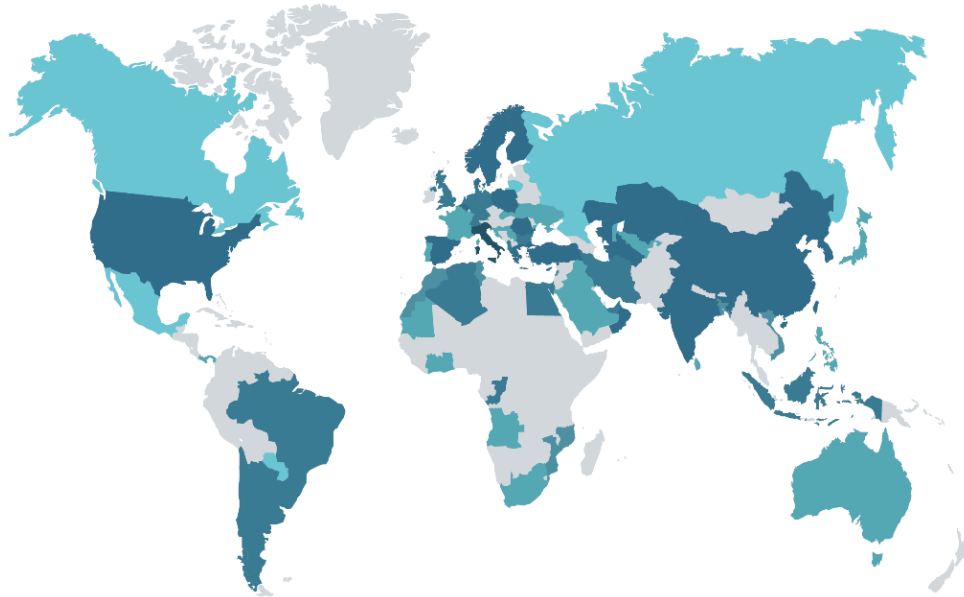
OVER 150 YEARS OF EXPERIENCE

RINA provides a wide range of services across the Energy, Marine, Certification, Transport & Infrastructure and Industry sectors through a global network of 170 offices in 65 countries.

RINA is a member of key international organisations and an important contributor to the development of new legislative standards.



What is RINA today



3800+ Colleagues

200+ Offices

70+ Countries

90+ Nationalities

LEVEL OF RINA PRESENCE



Our markets



SERVICES FOR:



Marine



Industry



Energy



**Transport &
Infrastructure**



Certification

RINA R&D

A spotlight on Innovation



- **210+** Industrial innovation Regional, National and EU **funded projects**, delivered in the past 10 years
- **300+ M€ Global value** of industrial innovation EU **funded projects**, delivered in the past 10 years
- **4th top** industrial **participant** in **FP7** across EU*
- **4th top** industrial participant in **H2020*** across EU**
- 5000+ partners in Innovation funded projects ***

* Final FP7 Monitoring Report

** INTERIM EVALUATION of HORIZON 2020

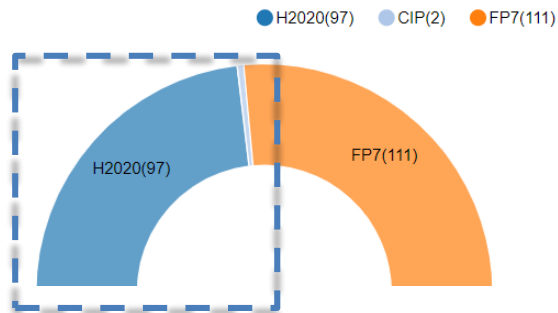
*** www.researchranking.org

RINA R&D

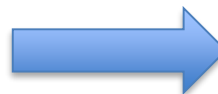
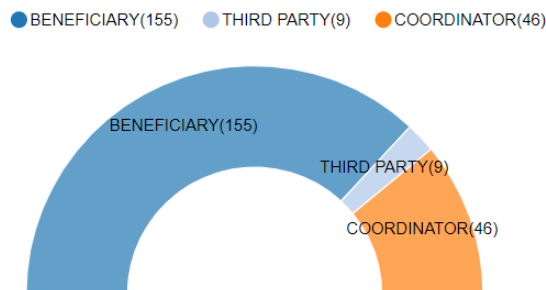
H2020 Performance



Programmes



Roles



H2020 Projects					
Type of Organis... PRC - Private for pro...					
H2020 Participations					
Top Participants					
Legal Name	Country	City	H2020 Participations	H2020 Net EU Contribution	
Totals			46.056	€ 14.491.908.684	
ATOS SPAIN SA	ES - Spain	MADRID	169	€ 60.610.092	
IBM RESEARCH GMBH	CH - Switzerland	RUESCHLIK...	99	€ 34.433.575	
RINA CONSULTING SPA	IT - Italy	GENOVA	95	€ 30.350.575	
ENGINEERING - INGEGNERIA INFORMATICA SPA	IT - Italy	ROMA	92	€ 40.288.347	
ATOS IT SOLUTIONS AND SERVICES IBERIA SL	ES - Spain	TRES CANTOS MADRID	88	€ 6.490.867	
SIEMENS AKTIENGESELLSCHAFT	DE - Germany	MUNCHEN	81	€ 48.404.175	
INDRA SISTEMAS SA	ES - Spain	ALCOBENDAS MADRID	76	€ 53.487.862	
ROBERT BOSCH GMBH	DE - Germany	GERLINGEN-SCHILLERH...	76	€ 46.451.963	
AVL LIST GMBH	AT - Austria	GRAZ	71	€ 37.166.245	
THALES SA	FR - France	COURBEVOIE	71	€ 27.190.097	
AIRBUS DEFENCE AND SPACE GMBH	DE - Germany	TAUFKIRCHEN	67	€ 27.016.831	
ACCIONA CONSTRUCCION SA	ES - Spain	ALCOBENDAS	65	€ 19.420.659	
TELEFONICA INVESTIGACION Y DESARROLLO SA	ES - Spain	MADRID	65	€ 18.296.276	
ARTTIC	FR - France	PARIS	62	€ 25.217.990	
LEONARDO - SOCIETA PER AZIONI	IT - Italy	ROMA	61	€ 98.205.617	

SOURCE: <https://webgate.ec.europa.eu/dashboard/sense/app/93297a69-09fd-4ef5-889f-b83c4e21d33e/sheet/PbZJnb/state/analysis>

SOURCE: <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/org-details/999951467;searchKeyword=:searchTopic=:searchTopicName=:call=:searchProgramme=:searchProgrammeName=null;legalName=RINA;organisationType=:country=:city=:pic=:countryAbbreviation=>

RINA R&D

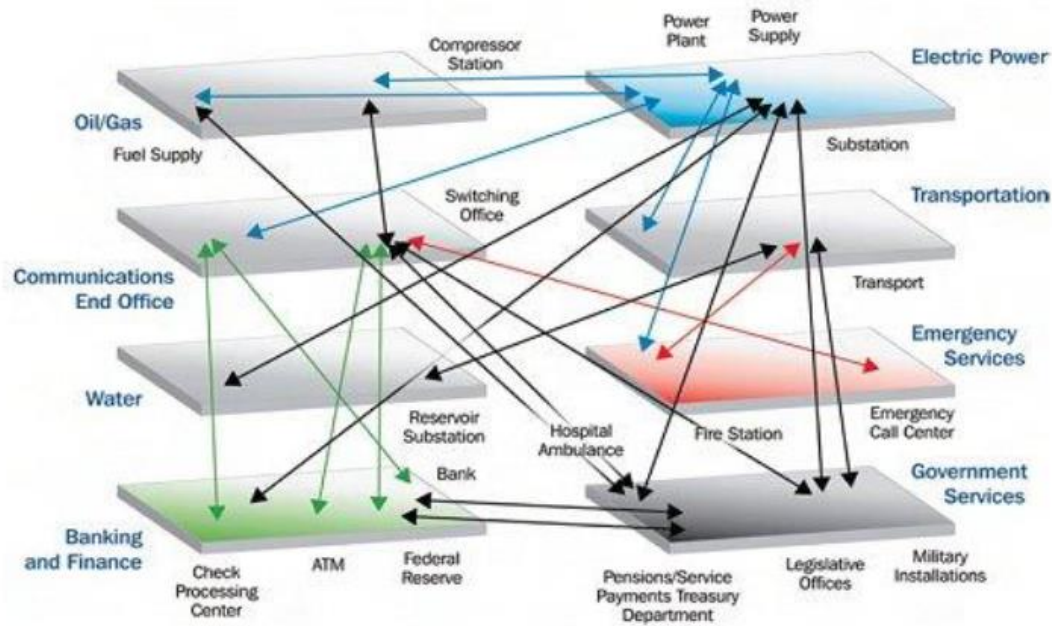
Focus areas



- [SUSTAINABILITY, ENERGY EFFICIENCY AND LOW-CARBON ENERGY](#)
- [INFRASTRUCTURE PROTECTION \(+ 10 H2020 Ongoing Projects\)](#)
- [INDUSTRIAL TECHNOLOGIES AND MATERIALS](#)
- [SMART CITIES AND COMMUNITIES](#)
- [SPACE TECHNOLOGIES](#)
- [SUSTAINABLE TRANSPORTATION](#)
- [MARITIME AND BLUE ECONOMY](#)
- [CIRCULAR ECONOMY AND BIO-BASED INDUSTRY](#)
- [ARTIFICIAL INTELLIGENCE AND DIGITALIZATION](#)



Infrastructure Protection & Security



Critical infrastructure is an asset or system which is essential for the maintenance of vital societal functions.

Their damage, destruction or disruption by natural and man-made events, may have a significant negative impact for the security of the a country and the well-being of its citizens

Infrastructure Protection & Security

Key Expertise:

- Resilience Engineering
- Disaster Resilience
- Physical Security
- Cyber and IT Security
- Border & External Security



Critical
Infrastructure Resilience

Infrastructure Protection & Security

Services:

- Safety, security & cyber security
- ICT & software engineering
- System & integration engineering
- Integrated logistic support
- Structural Health Monitoring
- Risk Analysis and Resilience Plans
- Training & learning solutions

*We support government ministries and prime contractors, through their entire life-cycle across every domain (**air, land, sea and security**) managing risk and optimising performance*



Critical
Infrastructure Resilience



RINA R&D

Reference H2020 Security projects



- SecureGas - Security & Resilience of Gas Critical Infrastructure
- Foresee - Resilience of Transport Critical Infrastructure
- Infracore - Security & Resilience of Sensitive Industrial Plants
- PEC - Multi-Hazards risks assessment in Disaster
- TRESSPASS - Borders Security
- PANACEA - Cyber Resilience of Healthcare IT systems
- CRITICAL CHAINS - Cyber-Physical Resilience in the Finance sector

R&D: Security & Resilience of Gas Critical Infrastructure

**Problem:**

Among CI, the Gas network represents a target to be protected, made secure and resilient to both physical and cyber threats. The complexity of the network, its difference among transportation lines, the peculiarity of the areas crossed, the various production and storage facilities make it a strong, relevant and challenging environment to cope with.

Start Date	01/06/2019
End Date	31/05/2021
Project Coordinator	RINA
Funding Scheme	SU-INFRA-01-2018

Solution:

SecureGas focuses on the 140.000Km of the European Gas network covering the entire value chain from Production to Distribution to the users, providing methodologies, tools and guidelines to secure existing and incoming installations and make them resilient to cyber-physical threats.

Top Projects: SecureGas

R&D: Security & Resilience of Gas Critical Infrastructure

ROLE in the Project:

RINA is the project coordinator and in charge of the definition of the Conceptual Model and High-Level Reference Architecture.

RINA is in charge of the design and implementation of standard components, as well as of solutions for landslides early warnings and distributed sensing technologies for anti-intrusion and leakage detection.

End-Users: Gas infrastructure operators, Gas companies, Energy operators, Associations in the Gas Sector (e.g. GIE, ENTSO-G, etc.), Ministries of Energy and Infrastructure





R&D: Resilience of Transport Critical Infrastructure

**Problem:**

provide cost effective and reliable tools to improve resilience of transport infrastructure and assets ((bridges, tunnels, pavement, slopes, terminals), as the ability to reduce the magnitude and/or duration of disruptive events.

Start Date	01/09/2018
End Date	28/02/2022
Project Coordinator	FUNDACION TECNALIA RESEARCH & INNOVATION

Solution:

To help Infrastructure Managers to disruptive hazards impacting on the transportation network, namely

- Extreme Weather Events, such as flooding and heavy rainfalls, snow and wind, landslides, earthquakes
- Man-made hazards: both intentional and accidental

Top Projects: FORESEE



R&D: Resilience of Transport Critical Infrastructure

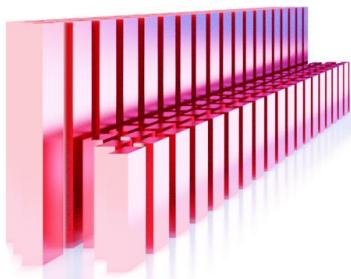
ROLE in the Project:

RINA is in charge of the design and development of an integrated and modular platform, the FORESEE Response, Mitigation and Adaptation Toolkit, that will host, integrate and make interoperable methodologies, practices and solutions to the benefit of infrastructure managers and operators

End-Users: Transport Infrastructure managers and operators; Transport Authorities, Ministries of Transport & Infrastructures



R&D: Security & Resilience of Sensitive Industrial Plants



Problem:

Sensitive sites/areas with large quantities of hazardous substances achieved a high level of industrial safety due to industry and legislative actions ("Seveso III"). Classical approaches and tools must be advanced to provide effective and cost-efficient features for detailed analysis of the complex interdependencies between security vulnerabilities and the safety properties of the infrastructure to be protected

Start Date	01/06/2019
End Date	31/05/2021
Project Coordinator	Engineering
Funding Scheme	SU-INFRA-01-2018

Solution:

To improve the resilience and the protection capabilities of Sensitive Industrial Plants and Sites (SIPS) exposed to large scale, combined, cyber-physical threats and hazards, guarantee the continuity of operations, while minimizing cascading effects in the infrastructure itself, the environment, the other CIs, and the citizens in vicinity, at reasonable cost.

Top Projects: Infrastress

R&D: Security & Resilience of Sensitive Industrial Plants

ROLE in the project:

RINA is in charge safety-security risk assessment/management as well as the identification and analysis of cascading effects.

End-Users: Critical Industrial Sites (e.g. Seveso) Managers and Operators, Security Services Providers, CI Authorities, Ministries



R&D: Multi-Hazards risks assessment in Disaster

**Problem:**

Multi-hazard health risk in chemical release incidents occurring during major natural or manmade disasters. This requires the development of an all-hazards approach, considering both severity and probability of identified hazards, to prioritize disaster-related public health risks for industrial facilities handling toxic chemicals

Solution:

Development of the seismic risk assessment of horizontal and vertical pressure vessels with non-linear dynamic analysis including soil structure interaction; anthropogenic hazard identification, and development of multi-hazards risk maps related to damages induced by earthquake, floods and anthropogenic hazards

Start Date	2016
End Date	2018
Project Coordinator	EUCENTRE
Funding Scheme	DG ECHO

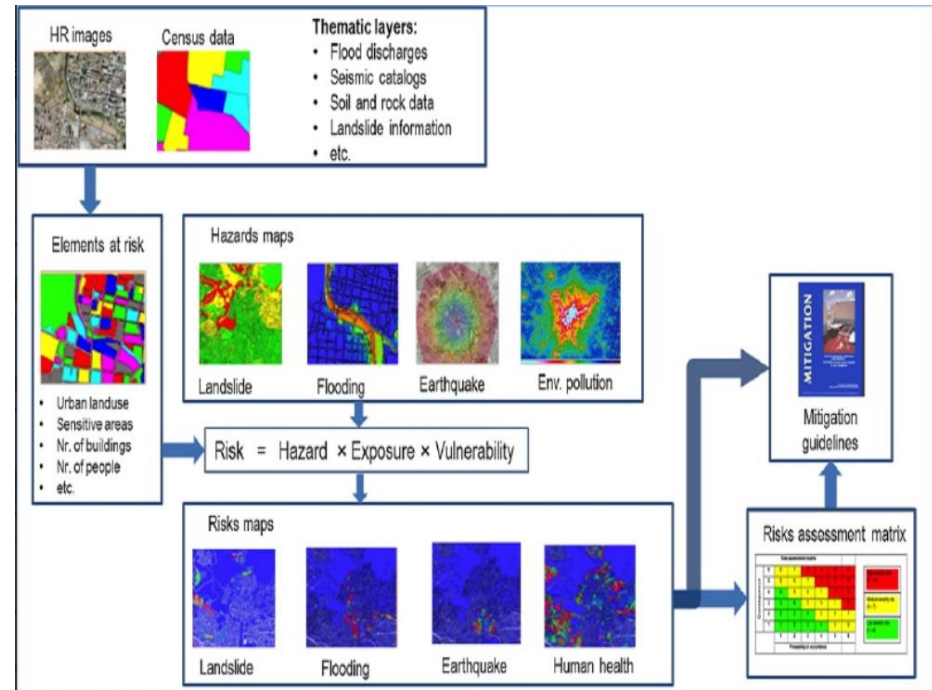
Top Projects: PEC

R&D: Multi-Hazards risks assessment in Disaster

ROLE in the project:

RINA defined mitigation guidelines for the characterization of “multi-hazard and multi-event-related” risks.

End-Users: National and International Agencies dealing with Civil protection, plants owner/operators, environmental protection agencies, local administrations



R&D: Borders Security



Problem:

Risk-based border management is about using border crossing points (BCPs) as a risk management measure that supports flow-, border- and national security. Risk-based approaches are typically used to select risk measures that are more proportional to the actual threat, while maintaining or even reducing the remaining risk: relaxed if possible, more stringent when needed.

Start Date	2018
End Date	2022
Project Coordinator	National Center for Scientific Research "Demokritos" (NCSRD)
Funding Scheme	H2020 / BES

Solution:

To modernize the way the security checks at border crossing points (BCPs) are held out.

TRESSPASS imports the idea of "Risk based" security checks and proposes an analytic framework for modelling risk as well as a systematic approach of quantifying risk, based on a set of indicators that can accurately be measured across all four tiers of the Integrated Border Management.

Top Projects: TRESSPASS

R&D: Borders Security



ROLE in the project:

RINA leads the activities on Data Modelling & Ingestion Server as well as the definition of the project High level scenarios.

End-Users: Airports, Ports and Land Custom authorities and agencies, Port Authorities, Airports Managers, Critical Infrastructure operators at sea/land/air borders



R&D: Cyber Resilience of Healthcare IT systems

**Problem:**

To enable healthcare facilities to assess the nature and severity of a threat, and sustainably decide to adopt strategies to strengthen their preparedness and response.

Start Date	01/01/2019
End Date	31/12/2022
Project Coordinator	Università Cattolica del Sacro Cuore (UCSC)

Solution:

PANACEA project will delivers people-centric cybersecurity solutions in healthcare by means of two toolkits for cyber security assessment and preparedness: the Solution Toolkit (made up of platforms, models, best practices, software applications) and the Delivery Toolkit (built on methodologies and implementation guidelines).

Top Projects: PANACEA

R&D: Cyber Resilience of Healthcare IT systems

ROLE in the project:

Development of cyber-security tools, security-by-design solutions, training and learning solutions, furthermore supporting certification in health care environment and GDPR aspects.

End-Users: Hospitals and healthcare facilities, healthcare devices and application suppliers, cybersecurity & privacy supplier companies, insurance companies



R&D: Cyber-Physical Resilience in the Finance sector



Problem:

Cyber threats and frauds (increased by more than 40% over the past 3 years); Long and complex contracting processes including retail banking, insurance and investment banking causing increased costs of financial procedures (about 1500 €/contract); The trade-off between face-to-face and mobile banking in terms of cost-effectiveness.

Start Date	2019
End Date	2022
Project Coordinator	Univeristy of Reading
Funding Scheme	H2020 / DS

Solution:

To tackle illicit transactions by creating a holistic and adaptable framework, including customers and financial authorities in an innovative triangular accountability model, that integrates the technologies and present a novel “as-a-service” (XaaS) platform aiming to protect financial infrastructures against illegal money trafficking and fraud on FinTech e-operations.

Top Projects: Critical Chain

R&D: Cyber-Physical Resilience in the Finance sector

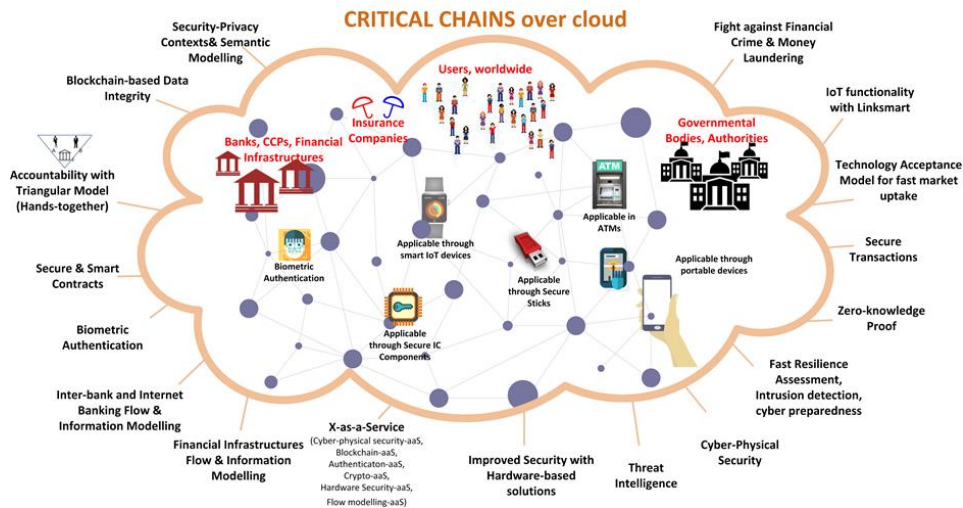


ROLE in the project:

RINA analyzes how the business model of the CRITICAL CHAINS Platform can be integrated with the provision of consultancy services such as Security Risk Assessment, Audit and Compliance in accordance to NIS and GDPR directives

End-Users:

Financial actors (e.g. banks) and Institutions, Service providers in the financial sector, CERT and Financial Sector Critical Infrastructure Operators



Conclusions



- RINA is active in Research & Innovation programmes across various domains and field of applications
- RINA has been working in Security & Resilience R&D projects in the last 10 years
- RINA has developed skills and competences (e.g. Resilience Engineering) in Security & Defence banking on the outcomes of R&D projects
- RINA is used to deal with public entitites and authorities, Critical Infrastructure Managers and Operators in both Reserarch and Industrial projects
- As such we would be delighted to cooperated in H2020 projects and beyond with Turkish End-Users including:
 - Coast Guard, Law Enforcement Authority, Turkish Ministry of Interior - Security and Emergency Coordination Center, Disaster and Emergency Management Authority, Turkish Customs, etc.



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