RINA

Disaster Resilience

DISASTER RESILIENCE

Disaster Resilience is the degree to which individuals, communities, public and private organizations are able to organize themselves to learn from past disasters (hazards, shocks or stresses) and reduce their risks to future ones, protecting long-term prospects for development at international, national and local levels. Among the most relevant and impacting events, the Global Risk Landscape 2018 has identified extreme weather events, Natural disasters, Cyberattacks, Failure of climate-change mitigation and adaptation.

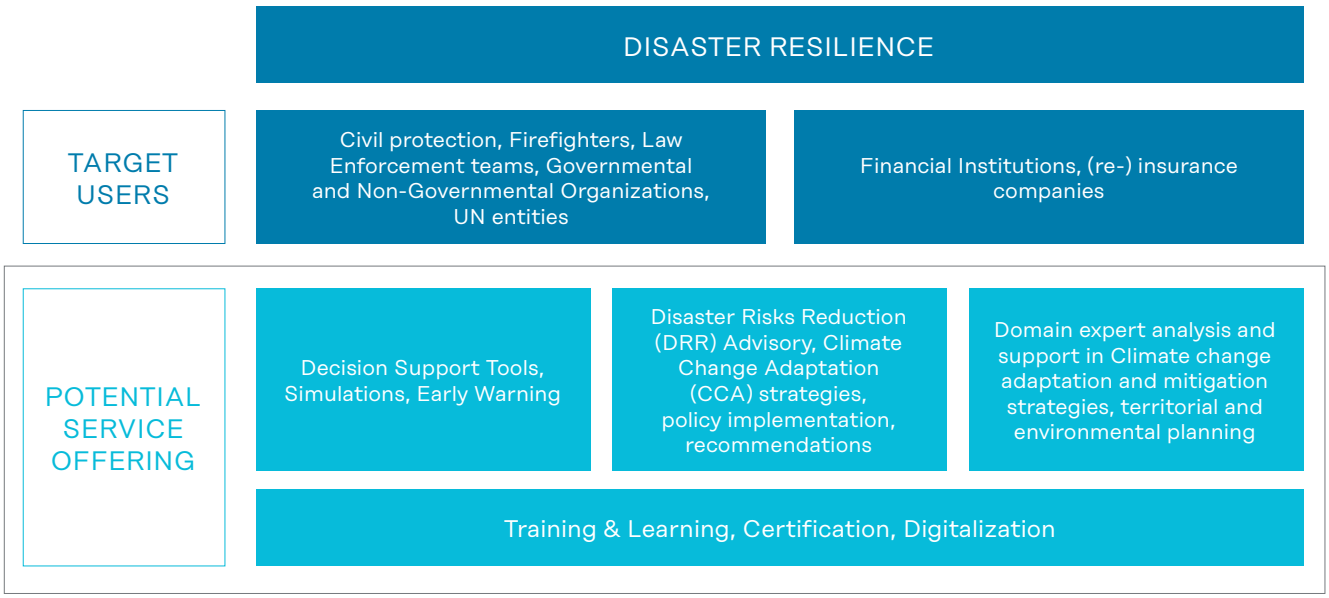
According to this and to the high-level goals and priorities as set by the Sendai Framework for Disaster Risk Reduction 2015 - 2030, RINA is strengthening its capabilities to strategically prevent, promptly detect, strongly respond and effectively mitigate all hazards with a coherent approach across various levels (from on-site to remote) and phases (from prevention to recovery). This is provided in combination with bespoke services to support civil authorities in their decision making process, as well as training activities in planning their response to crises (e.g. accidents, natural disasters and acts of terrorism).

Disaster Management Cycle

Spanning from the design of technological solutions to the development of policy and user's recommendations, moving through hazards identification, risk and vulnerability assessment, up to the definition of strategies for territorial protection and resilience, RINA embraces its engineering capabilities to provide strategical support to private, public and non-governmental entities. These services will be delivered via a Software as a Service (SaaS) model, exploiting the corporate RINACube platform, a cloud-based open platform that allows data integration from various sources, and is capable of machine learning driven powerful analytics to correlate data and provide valuable insights.

Users and Service Offering

Thanks to a multidisciplinary team and cross-sectorial approach, RINA can support clients, being Emergency Actors and Financial Institutions in operationalizing resilient principles no matter of the type of stress and shock they are experiencing and of the sector of application. RINA offers to them integrated services, spanning from IT tools (e.g. early warning system, decision support systems, simulations, training), guidelines and recommendations to cope with the adaptation and mitigation to extreme events and climate changes, up to advisory services and advanced engineering studies (e.g. geohazard studies).



Users and service offering

In this context, resilience to extreme events, including those exacerbated by climate effects, represent a further challenge and an opportunity RINA is working on thanks to the definition of ad-hoc climate adaptation and mitigation strategies, that, on the basis of climate vulnerability risk analysis, support the user with a set of engineering solutions and measures to effectively address all the phases in the disaster management cycle.

Emergency actor (support)		Disaster management cycle			
		Prevention	Preparedness	Response	Recovery
Relevant operations	In-field operations				
	On-site operations coordination	●	●	●	
	Remote Headquarters coordination	●	●	●	●

Areas of expertise

- Risk analysis, implementing an all-hazards approach
- Geotechnical and geophysical engineering
- Earthquake and structural engineering
- Environmental engineering, including support and advisory for territorial planning and land use
- Strategies and solutions for climate change, including the interaction between Disaster Risk Reduction (DRR), climate adaptation and ecosystem services
- Software engineering, including the implementation of Early Warning Systems (EWS) for response planning
- Simulation Tools (ST), including those for scenario building and response planning
- Decision Support Tools (DST) for improving preparedness of users and response coordination
- Training and learning solutions, including the integration and analysis of the human factors

An Integrated Approach

Prevention

A structured and integrated collection of information from lessons learnt, risk analysis, emergency procedures, in-field data, as a key-enabling element to increase risk assessment capabilities for a better adoption of measures to limit and reduce crisis/disaster impact. RINA offers multi-criteria decision support tools relying on risk assessment based on the presence of critical infrastructures, environmental risks, type of organization needed/available, emergency procedures.

Preparedness

The coherent combination and interaction of information coming from different simulation tools can enhance evaluation capabilities over hazards scenario (e.g. floods, forest-fire, etc.) of different nature, size and relevance. RINA offers simulation tools for disaster preparedness setting the scene for the implementation of response plans. The output are simulated, interactive and dynamic disaster-related scenarios useful to improve planning and training capabilities.

Response

Strengthening local inter-organizational coordination in the response phase means being able to integrate information coming from in-field and remote sources, provide a dynamic and updated common operational picture and track the on-going response operations (useful for reporting activities, post-assessment and lesson learnt). RINA offers Decision Support Tools (DSTs) to enhance Situational Awareness (SA) and Common Operational Picture (COP), providing the coordinator on site with a means to identify the actions to be performed and the tasks to be assigned, complemented with a contingency plan simulator, to verify and refine the adequacy and effectiveness of contingency plans.

Key Benefits

- Added value tools and services delivered via a corporate Software as a Service (SaaS) platform, RINACube
- A comprehensive, coherent and holistic approach which is extremely innovative, whilst building on solid, established and widely recognised foundations and expertise
- All-hazard approach in the risk analysis, to provide qualitative and quantitative assessment
- The delivery of bespoke services to assist civil authorities in their decision making process or planning their response to crises
- Software engineering capabilities, ranging from software development, to interface stimulation, physical models parametrization, missing system components simulation, product qualification through hardware emulation
- Deep knowledge of sensors and systems, thanks to advanced engineering knowledge combined with technology analysis and scouting capabilities
- Strong earthquake and geotechnical engineering competences and capabilities
- Solid understanding and analysis of Human factors and their integration into training schemes and awareness strategies
- Strong simulation capabilities for a better description and evolution of a disaster, combined with a robust integration of heterogeneous in-field information to provide situation awareness
- An integrated emergency management platform to enhance the intervention potential of rescue organizations by providing advanced disaster scenarios, a dynamic common operational picture for response and a multi-criteria decision support for risk assessment
- Deep understanding of the impact of climate change risks and their implication in disaster risk reduction, financial estimations, policy implementation

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