LAUNCH OF THE 10TH SAF€RA JOINT CALL

SAF€RA Brokerage Event
March 12th, 2026 – Online

Olivier Salvi

Technical Secretary of SAF€RA, INERIS Développement, France

Coordination of European Research on Industrial Safety towards Smart and Sustainable Growth

10 partners from 9 countries

BAM

Federal Ministry
Republic of Austria
Climate Action, Environment,
Energy, Mobility,
Innovation and Technology

INERIS
maîtriser le risque
pour un développement durable

OSALAN
Laneko Segurtasun eta
Osasunerako Euskal Erakundea
Instituto Vasco de
Seguridad y Salud Laborales

INAIL
ISTITUTO NAZIONALE PER L'ASSICURAZIONE
CONTRO GLI INFORTUNI SUL LAVORO

FONCSI
Fondation pour une culture
de sécurité industrielle

MSTDI Serbia

VSB TECHNICAL UNIVERSITY OF OSTRAVA | FACULTY OF SAFETY ENGINEERING

Työsuojelurahasto
Arbetarskyddsfonden
The Finnish Work Environment Fund

SAF€RA Secretariat:

INERIS
Développement

What is SAF€RA?

From an EU project (ERANET 2012-2015) to a research funding partnership

Vision

Safety and innovation jointly contribute to the competitiveness and sustainability of European industry, meeting societal challenges.

Researchers from various scientific disciplines and stakeholders constitute a community, sharing knowledge about industrial safety.

What is SAF€RA?

Mission

- SAF€RA shall **coordinate research investment in Europe** on industrial safety, improving the coherence of research, thus contributing to the development of the European Research Area in industrial safety. SAF€RA will therefore:
  - encourage cooperation between researchers from various countries and scientific disciplines;
  - create new perspectives and opportunities for safety research to provide industry with forward-looking solutions;
  - share emerging societal concerns, knowledge and research results on industrial safety issues in Europe;
  - promote research on industrial safety as a competitive advantage and contribute to societal decision making on innovative technologies.

What is SAF€RA?

Values

- The SAF€RA Partnership shares the following values:
  - Safety is the keystone of competitiveness, sustainability and social welfare.
  - Openness, transparency and objectivity.
  - Cooperation based on trust and fair partnership, respecting partners' interests and diversity.

Major Achievements

- Since 2012: 10 calls for projects have been published
- 39 projects funded
- Light weight research cooperation
  - agile project with 3 to 5 partners,
  - budget between 100 k€ to 500 k€,
  - 1 to 3 years,
  - time between call and contract is less than 1 year

2026
Innovative solutions and technologies to improve safety of workers and emergency responders

2025
Advanced materials and technologies, robotics and AI to improve health, safety and sustainability

2024
Health and safety implications of industrial digital twins and algorithmic management

2022
Industrial safety implications of platform work, the Green Deal, and advanced materials for energy storage

2021
Industrial safety in the context of pandemics and exponential change

…

https://www.safera.eu/projects

10th SAF€RA Joint Call 2026

Call for Proposals: Innovative solutions and technologies to improve safety of workers and emergency responders

🗓️ Apply by March 31, 2026 at 16:00 CEST

💼 Budget: €1.2M in cash + in-kind

📝 Topics:

- Robotics and innovative technologies and approaches to increase safety and reduce the exposure of workers and emergency responders
- Understanding materials to improve safety and reduce the exposure of workers and emergency responders
- Improving risk assessment and risk management practices using big-data, AI, and numerical modelling

More information at https://www.safera.eu/joint-calls/10thjointcall

Procedure for application – 2-stages with pre-proposal

- Publication of the call - February 4th, 2026
- SAF€RA brokerage event (on-line with pre-registration) - March 12th, 2026 (10:00 - 12:30 CET)
- Deadline for submissions of pre-proposals - March 31th, 2026 at 16:00 CEST
- Information sent to applicants on results of the first stage. Requests for full proposals are sent to selected applicants, and collaborations proposed to single-nation applicants - April 17th, 2025
- Deadline for submission of full proposals - June 30th, 2026 at 16:00 CEST
- National funding decisions transmitted to applicants - Early October 2026
- Projects start - Beginning 2027

Topic 1: Robotics and innovative technologies and approaches to increase safety and reduce the exposure of workers and emergency responders

Ensuring the safety of workers and emergency responders demands a combination of advanced technologies and predictive tools, and material science innovations. Technological progress, particularly in robotics, digitalization, and materials engineering, offers unprecedented opportunities to reduce exposure to hazards, improve operational effectiveness, and support decision-making during both industrial operations and emergencies.

On the technological side, robots and UAVs increasingly perform hazardous inspections and surveillance tasks, limiting human presence in dangerous areas. Virtual and augmented reality support realistic, risk-free training and rehearsal of critical operations. As alternative fuels become more common, industrial workers and emergency services require updated procedures and response protocols tailored to hydrogen, batteries, ammonia, and biofuels. Complementary decontamination innovations, including enzymatic, sorbent-based, and photocatalytic techniques, help mitigate chemical, biological, radiological, and particulate contamination. Meanwhile, digital twins integrate real-time data with predictive models to simulate incidents, anticipate failures, and optimize response strategies.

The proposed research projects should integrate advanced technologies with the objective of safeguarding Europe's workforce and emergency responders in an evolving industrial and environmental landscape.

Topic 2: Understanding materials to improve safety and reduce the exposure of workers and emergency responders

Improved material understanding is essential to ensure safety of workers and emergency responders. Industrial accidents (in particular fires) involving advanced materials or legacy contaminants release complex pollutants, necessitating better prediction tools and real-time monitoring capabilities. Substituting chemicals of concern with advanced or bio-based materials helps reduce risks at source. Wearables enhance protection, situational awareness, and physical performance for responders. Finally, the growing deployment of electrochemical energy systems underscores the need for safer design, supported by numerical modelling to predict failure modes and guide the development of more reliable materials.

Research projects should focus on materials sciences and in particular on multi-physics and multiscale modelling, numerical simulation, and data-driven or hybrid approaches that enable new insights into the performance of advanced materials in critical industrial components. Proposed work may combine simulation, experimental validation, uncertainty quantification, or design methodologies. Ultimately, the goal is to foster innovative concepts and predictive tools that support the development of safer, more resilient, and sustainable technologies in diverse application fields that improve the occupational health and safety of European industrial workers and emergency responders, in the context of the energy transition and climate change adaptation.

Topic 3: Improving risk assessment and risk management practices using big-data, AI, and numerical modelling

Risk assessment and risk management are undergoing a fundamental transformation driven by the availability of large-scale datasets, advances in artificial intelligence (AI), and significant progress in numerical and computational modelling. Traditional approaches, often based on limited datasets, expert judgment, and deterministic models, are increasingly being complemented or replaced by data rich, adaptive, and probabilistic methods. This evolution enables a more accurate, timely, and dynamic understanding of hazards, exposures, and vulnerabilities across multiple domains such as occupational safety, industrial processes, environmental risks, public health, and critical infrastructures.

The objective of the research call is to investigate the benefits of the use of big-data, AI, and numerical modelling to improve the relevance and accuracy of risk assessment and management or even to propose improved approaches using AI, big-datasets, digital twins or numerical modelling for risk assessment, auditing and risk-based decision making.

Pitches for project proposals or contributions in projects

- Topic 2: Multi-Physics Modeling of Membrane Processes in Electrolytic Systems – Marc Hirschvogel
- Topic 2: Safety assessment of advanced materials – Marco Pelin
- Topic 3: (FRAME-HYT) Framework for Real-time Anomaly Mitigation in Emerging Hydrogen Technologies – Simone Guarino
- Topic 3: (FOCUS) Fostering on-site human-drone collaboration for upgrading safety risk management at industrial sites – Elena Stefana
- (ENSOSP) French National Firefighter Officers Academy – Bénédicte Darnet & Léa Taillandier
- (PESI) Spanish technology platform on industrial safety security & resilience - Javier LARRAÑETA

Unless asked otherwise by the pitchers, the presentations and contact details will be shared within the SAF€RA community after the brokerage event.

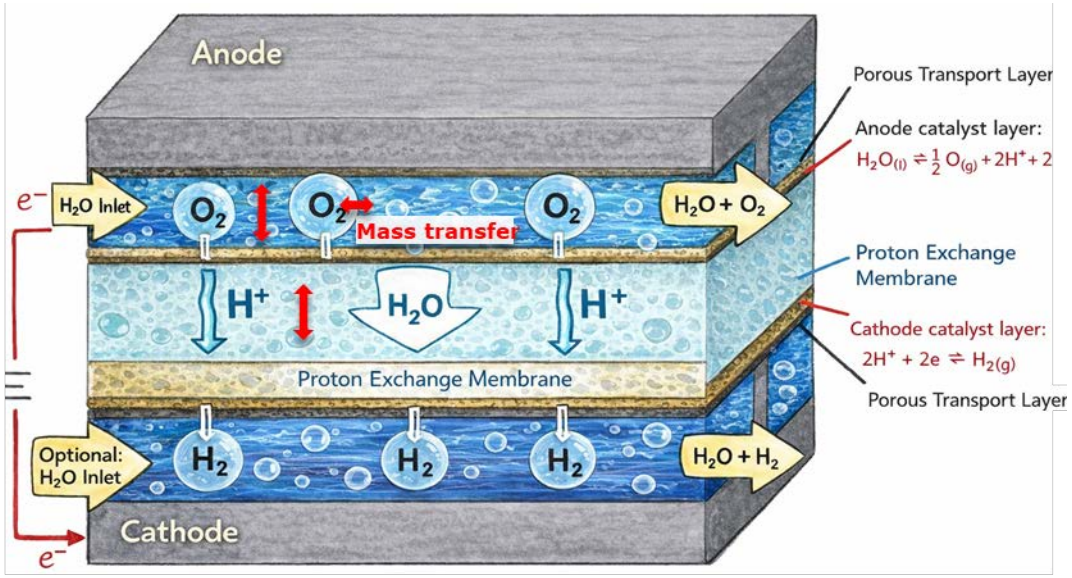
Multi-Physics Modeling of Membrane Processes in Electrolytic Systems

SAF€RA Brokerage session
March 12, 2026

Coordination of European Research on Industrial Safety towards Smart and Sustainable Growth

Multi-Physics Modeling of Membrane Processes in Electrolytic Systems

- *Brief description of the project:* ***Multi-physics computational models*** *of mechanisms in electrolytic membrane components should be developed. They allow insights into the* ***hydro-mechanical and electro-chemical processes*** *that eventually lead to* ***material fatigue and damage.*** *Modeling will help further understand these chains of events and can improve safety and efficiency of electrolytic cells.*
- *Key objectives of the project:* ***Understanding failure mechanisms in membrane components*** *of electrolytic systems to design safer and more resilient materials*
- *Expected impact on industrial safety: Improved safety, resilience, and performance of electrolytic processes*
- *Overview of project partners and their expertise:*
  - *Division 2.2 Process Simulation @BAM – Experts in process modeling, continuum mechanics, multi-physics coupling*
  - *N/A – Industrial partner who brings process knowledge, measurement data, and insights into system devices to the table*
- *Expected additional expertise: Experimentation, data acquisition, insight into systems at operating conditions*



Sketch of processes in proton-exchange membrane water electrolysis (PEMWE)

Thank you

Dr.-Ing. Marc Hirschvogel
Deputy Head of Division 2.2 Process Simulation
Bundesanstalt für Materialforschung und -prüfung (BAM)
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Coordination of European Research on Industrial Safety towards Smart and Sustainable Growth

SAFETY ASSESSMENT OF ADVANCED MATERIALS

Prof. Marco Pelin

Department of Life Sciences, University of Trieste (Italy)

SAF€RA Brokerage session
March 12, 2026

Coordination of European Research on Industrial Safety towards Smart and Sustainable Growth

Toxicology group – University of Trieste (Italy)

Prof. Marco Pelin

Prof. Silvio Sosa

Dr. Michela Carlin

Dr. Alessandra D'Arelli

Dr. Aneeza Sardar

DIPARTIMENTO DI SCIENZE DELLA VITA

https://dsv.units.it

UNIVERSITY OF TRIESTE

Short description of the group:

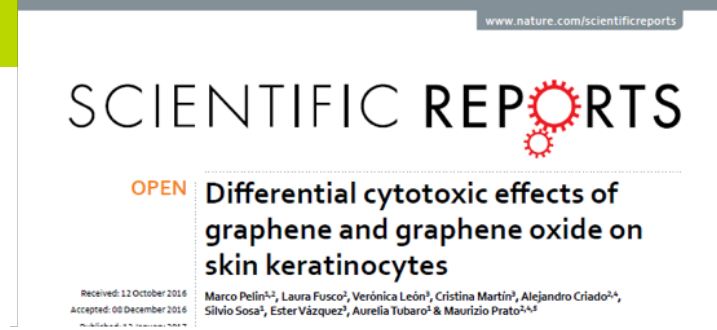
- *Strong knowledge in (nano)safety evaluation, with a particular focus on the hazard characterization at the skin and pulmonary level*
- *Big experience in providing regulatory-relevant toxicological data, i.e. through adoption of OECD TG for human health (Prof. Pelin is member of the Italian Delegation of OECD WPMN)*

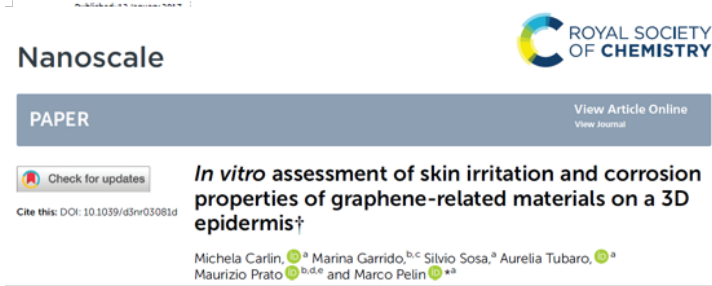
Toxicology group – Ongoing Research & Technologies

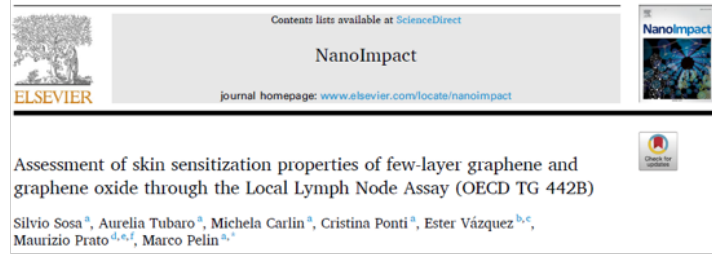
What we do:

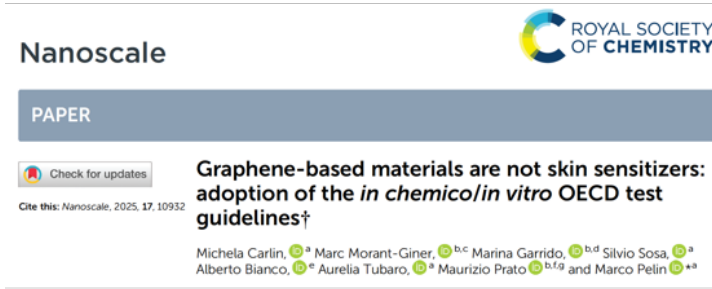
- *In vitro characterization of the safety profile of nanomaterials and advanced materials (i.e. graphene, 2D materials, metal-based nanomaterials) and characterization of mode-of-action*
- *In vitro characterization of the safety profile of nanomaterials and advanced materials on advanced models (i.e. 3D models of epidermis or bronchial epithelium and/or co-culture models)*
- *In vivo characterization of the safety profile*
- *Regulatory-relevant (OECD-based) toxicity studies*

- *Core techniques or infrastructures:*
  - *In vitro studies on 2D and 3D advanced models*
  - *Molecular biology techniques, advanced microscopy techniques*









Toxicology group – Ongoing Research & Technologies

- *In vitro* skin irritation – OECD TG 439
- *In vitro* ski corrosion – OECD TG 431

- *In chemico/in vitro* skin sensitization

OECD TG 442C: peptide reactivity

OECD TG 442D: keratinocytes activation

OECD TG 442E: dendritic cells activation

- High reliability and robustness of the data
- Accordance with regulatory requirements

Toxicology group – Ongoing Research & Technologies

Main funded project in which we were/are involved:

- ***PFESS.*** *PFAS-Free Membranes for Energy Storage and Conversion Systems (funded by SAF€RA joint call 2025; 2026-2028) – PARTNER*
- ***Safe²energy.*** *Safer life cycle of advanced 2D materials used in energy applications (funded by SAF€RA joint call 2022; 2023-2025) – COORDINATOR*
- ***GrapHazard.*** *Hazard characterization of graphene-based nanomaterials in energy production and storage (funded by SAF€RA joint call 2020; 2021-2024) – PARTNER*
- ***SafeGraph*** *– Spearhead Project (Funded by EU H2020 programme; 2020-2023) – PARTNER*
- ***Graphene Flagship*** *– WP4 Health and Environment (funded by EU H2020 programme; 2016-2023) – PARTNER*

UNIVERSITY OF TRIESTE

We are open for collaborations!
Thank you

University of Trieste (Italy) – **Department of Life Sciences**

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Coordination of European Research on Industrial Safety towards Smart and Sustainable Growth

FRAME-HYT

FRAMEWORK FOR REAL-TIME ANOMALY MITIGATION IN EMERGING HYDROGEN TECHNOLOGIES

S. Guarino
T. Vairo
R. Setola

SAF€RA Brokerage session
March 12, 2026

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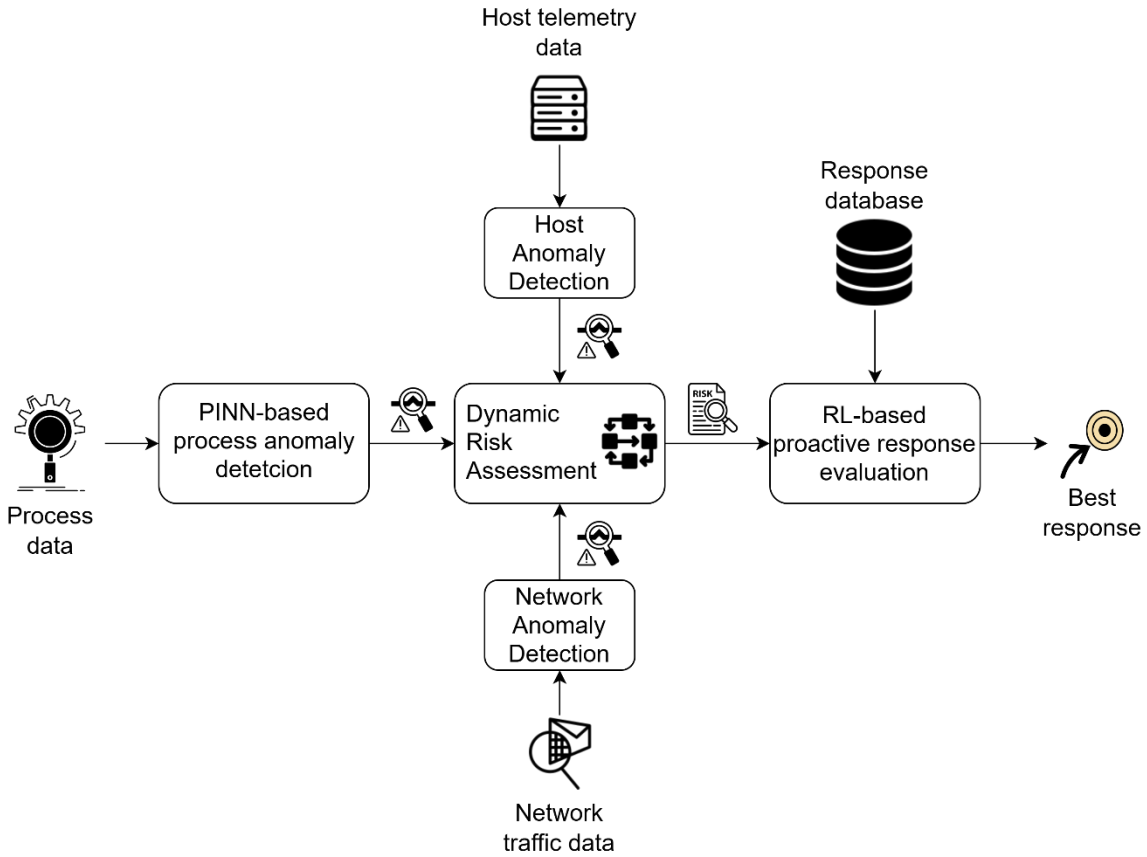
FRAME-HYT
Brief description of the project idea

Development of a risk mitigation framework for next-generation hydrogen fuel cell systems, aimed at transforming conventional safety assessment from reactive analysis to proactive response.



The framework involves three main anomaly detection modules:

1. **Physics-Informed Neural Network (PINN)** for process anomaly detection.
2. **Signature-based and anomaly-based IDS** for network traffic analysis.
3. **Host-based anomaly detection** for endpoint monitoring.

Anomaly data from all three sources dynamically feeds a cyber-physical risk assessment engine based on **Continuous-Time Bayesian Networks**

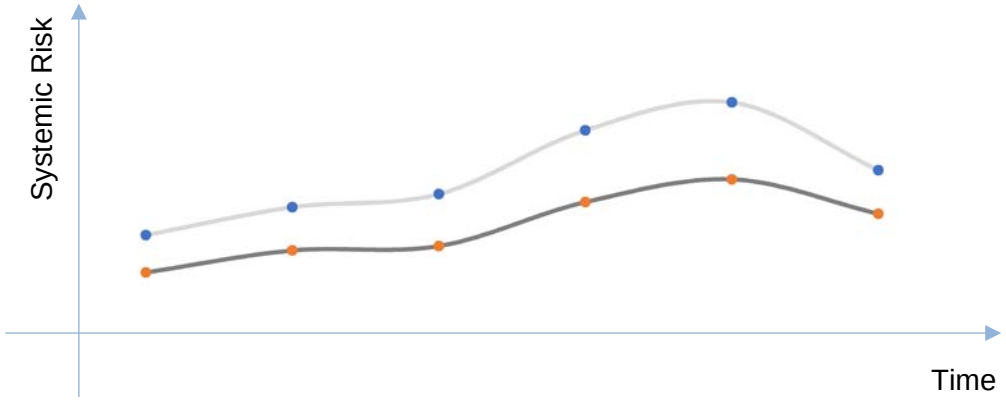
A **Reinforcement Learning** agent evaluates optimal responses to proactively mitigate identified risks

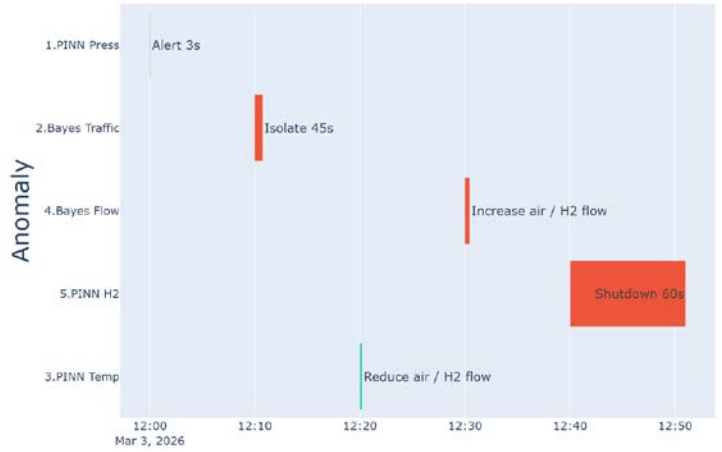
FRAME-HYT
Key objectives of the project

The framework integrates:

- *Real-time operational sensor streams (temperature, pressure, current density, hydrogen concentration), SCADA network traffic and host-based telemetry data;*
- *Bayesian uncertainty quantification for dynamic probabilistic risk estimation;*
- *Identification of the most effective proactive response to minimize the risk.*

By coupling PINNs, network-based and host-based anomaly detectors with dynamic probabilistic models, the framework can generate ***time-evolving risk indicators*** and support industrial resilience by identifying the most effective response planning.

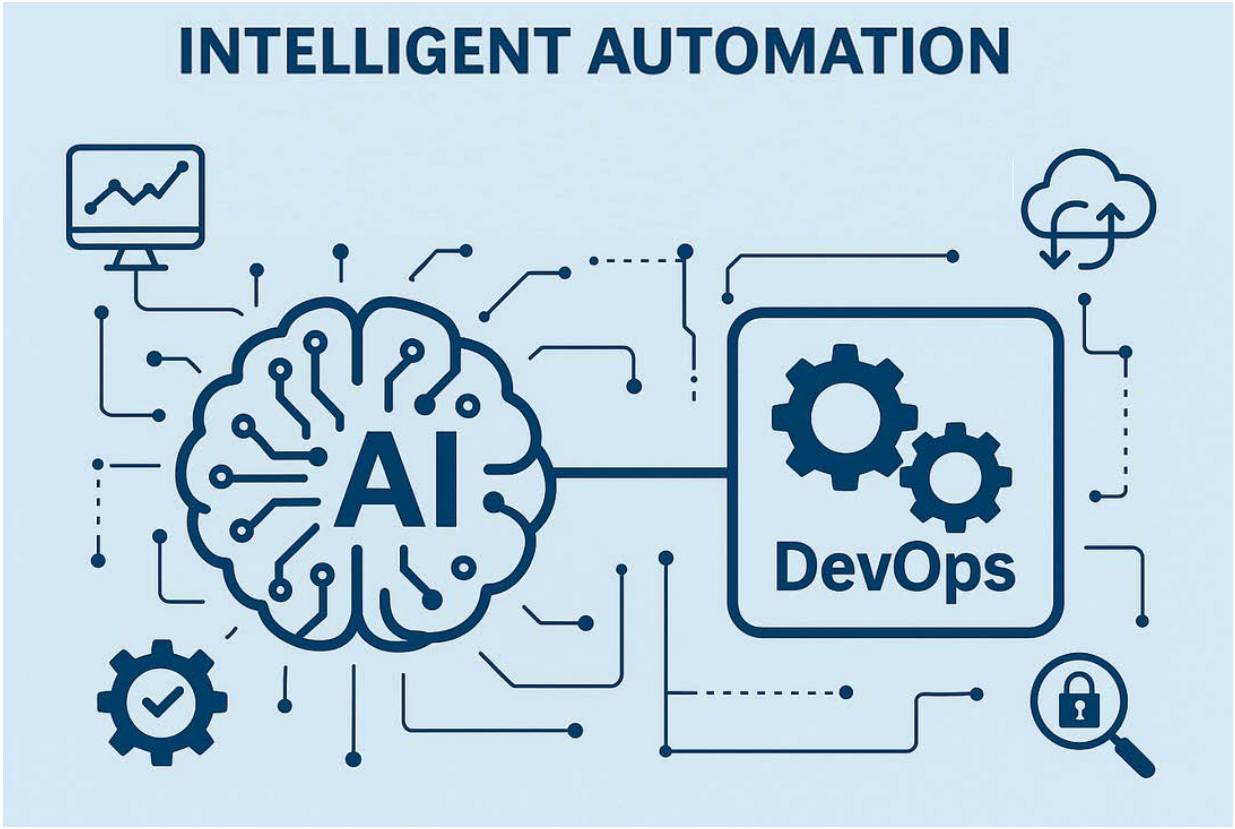




FRAME-HYT
Expected impact on industrial safety

This project advances toward a paradigm of ***self-aware energy systems***, where AI-enhanced digital twins continuously assess their own safety margins, anticipate cascading deviations, and support risk-mitigation control strategies.

The methodology is transferable to other safety-critical domains such as battery systems, chemical reactors, and integrated hydrogen-energy networks.



FRAME-HYT
Overview of project partners and their expertise

University Campus Bio-Medico of Rome provides expertise in:

1. Applied research in probabilistic modeling, anomaly and attack detection, and optimal response strategy.
2. Theoretical research in system theory and automatic control with practical applications for complex, interconnected systems.
3. Industrial automation, and control.
4. Security and protection of Critical Infrastructures (primary focus), including Homeland Security.
5. Innovative solutions for smart environments, worker safety, sensor networks, and Cyber Security in Operational Technologies.

FRAME-HYT
Expected additional expertise

1. Expertise from hydrogen fuel cell system design and development
2. Expertise from Professional and Research bodies involved in cyber-physical risk assessment and management;
3. Availability of experimental sites or labs for test-range simulation.

FRAME-HYT

Framework for Real-time Anomaly Mitigation in Emerging Hydrogen Technologies

Thank you

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FOCUS:

FOSTERING ON-SITE HUMAN-DRONE COLLABORATION FOR UPGRADING SAFETY RISK MANAGEMENT AT INDUSTRIAL SITES

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Topic 3
Improving risk assessment and risk management practices using big-data, AI, and numerical modelling

- FOCUS investigates the use of drones for conducting inspections at industrial sites to develop Concepts of Operations (ConOps) detailing guidelines and recommendations for the safe use of unmanned systems in industrial operations involving humans.

- Examine relevant inspection activities in a steel company
- Develop hybrid modelling approaches (i.e., knowledge-based + data-driven approaches) / numerical modelling and digital twins / simulation frameworks to improve safety risk assessment and management processes and to support the identification of early warnings in industrial systems
- Assess emergent risks related to the use of novel technologies in industrial settings
- Actively involve workers and end-users in the design, implementation, and use of novel technologies

Consortium

ITALY – REPUBLIC OF SERBIA - GERMANY

- Sapienza University of Rome (Italy) - coordinator
- Università degli Studi di Brescia (Italy)

  → Occupational and operational safety; Safety management; Aviation safety; Industrial plants; Operations management; Steel processes

- University of Belgrade (Republic of Serbia) → Aviation safety; Drone requirements for data collection; Assessment of emergent risks of drone use at industrial sites
- Bundesanstalt für Materialforschung und -prüfung - BAM (Germany) → Hybrid modelling approaches; Numerical modelling and digital twins; Simulation frameworks

Thank you

Elena Stefana

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Sapienza University of Rome (Italy)

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ENSOSP

FRENCH NATIONAL FIREFIGHTER OFFICERS ACADEMY

SAF€RA Brokerage session
March 12, 2026

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ENSOSP – French National Firefighter Officers Academy

- National Public administration
- Training of all volunteer and professional firefighter officers (around 29 000)
  - Initial - Commandment, management, operational
  - Specialized training – CBRN, H2, crisis management,
- Experience in different research and European projects
- **Infrastructures :** classroom, simulation training center, specialized risk training platform (H2/CBRN), crisis management simulation rooms and medical emergencies simulation)
- **Our roles :** end-user, needs analysis, use case scenarios, test and validation of technologies, training development, provide expertise

Interest and added value

- **Topic 1 :** Robotics and innovative technologies and approaches to increase safety and reduce the exposure of workers and emergency responders
- **Topic 2 :** Understanding materials to improve safety and reduce the exposure of workers and emergency responders
- **Topic 3 :** Improving risk assessment and risk management practices using big-data, AI, and numerical modelling

  - End-user/Emergency Responder representation
  - Technology testing & CBRN/Hydrogen experience/expertise
  - Use case scenarios and test infrastructures
  - Artificial Intelligence development and support

Thank you

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Coordination of European Research on Industrial Safety towards Smart and Sustainable Growth

PESI (SPANISH TECHNOLOGY PLATFORM ON INDUSTRIAL SAFETY SECURITY & RESILIENCE)

BASQUE PARTNERS FOR THE 3 TOPICS (PARTICIPATION IN THE LAST 3 SAF€RA CALLS)

SAF€RA Brokerage session
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Coordination of European Research on Industrial Safety towards Smart and Sustainable Growth

PESI and Basque partners (Engineering & Industry, Emergency Agency and 1st Responders -Firefighters: Bilbao, Vitoria-)

- *PESI, non-profit Industry Association (+850 members, HQ in Basque Country: SAF€RA funding by OSALAN)*
- *PESI activity: collaborative R&D on Technology innovation in Industrial Safety, with a human-centric integral vision (Environmental safety; OSH in Industry 5.0; KET & digital transformation and new Risks: RA/RM 5.0; Industrial Safety and safety systems –PPE, wearables, Fire Protection…-; Emergency management: 1st&2nd Responders; Security & Cybersecurity –Industry, Networks & Infrastructures; Human factor: Psychosocial risks, Gender/Age…)*
- *PESI and Basque Partners (Industry Engineering and Prevention Services; Emergency Responders) for the **3 Topics***
- *Participation in R&D European projects in HE-CL3-DRS (Emergency Responders):*
  - *DIREKTION (2023-2026): European Network for Disaster Resilience Knowledge*
  - *HARMONY (2025-2028): Harmonised cross-border protocols and tools for assessing/managing climate-related risks (fires, floods)*
- *Experience in SAF€RA (3 last calls):*
  - *2023 Digital PlatformWork & OSH (finished);*
  - *2024 HUMAN4DIG 5.0: safety and health compliant Cyber Physical systems for digitalized surveillance and assistance processes in hazardous workplaces (end Nov-2026);*
  - *2025 AIPER (just started): AI-PowERed human-robot work environments for safe, healthy, and trustworthy collaboration*

Thank you

J Javier LARRAÑETA

PESI, Secretary General

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http://www.pesi-seguridadindustrial.org

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Conclusions & next steps

We hope this brokerage event helped you to:

- Identify **potential partners**
- Clarify **project ideas**
- Better understand the **10th SAF€RA Joint Call**

The recording and slides will be shared on the SAF€RA website unless asked otherwise by the pitcher (by 12/03/2026 by 13:00 CEST).

Next steps for applicants

- **Pre-proposal deadline:** March 31st, 2026 at 16:00 CEST
- Prepare your **pre-proposal according to the** Guide for Applicants
- Continue discussions with potential partners identified today

Thank you

Contact details

SAFERA - Secretariat contact@safera.eu

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