



Previous ESReDA SEMINARS

The 56th ESReDA Seminar



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The 56th ESReDA Seminar on Critical Services continuity, Resilience and Security 23-24 May 2019, Linz, Austria

New Challenges, New Opportunities for our Community

International trade flow is increasing as never before. The world Trade Organisation monitors an average growth in manufactured goods and agriculture products exports of 8% and 5%, respectively¹. Although some trade restriction tendencies are on the rise, they do not seem sustainable on the mid and long term. This ever-increasing trade flow requires the reinforcement of the existing EU border control strategy² and enhancing it by developing new border customs control strategy. EU-DG XXI has emitted a guide exploring this new border customs control strategy. In that report, EU-Ad hoc expert group conceives a strategy based on risk-assessment, intensive use of IT and non-intrusive control. Facing the growing threat of illegal trafficking³ (cigarette, alcohols, drugs, radioactive substances, migrants, etc.), the actual practices of customs are based on a systematic (when it is possible) intrusive control of containers. Given the annual volume of containers crossing EU-Borders, the strategy of a systematic intrusive customs control is not sustainable. This conservative strategy, by itself, is another real threat to the worldwide export-import supply chain continuity.

Non-intrusive containers control can be faster and far less consuming of resources (time, personal and organisational). However, it should be based on probabilistic risk-assessment in order to minimise the risk of “non-compliance with EU control and taxation legislations”.

Our scientific community is facing a serious challenge by EU requirements to develop a risk-based customs control strategy and a robust non-intrusive container control process, led by IT.

For that purpose, advanced risk-assessment should be covering three complementary domains: information and informative intelligence, the combined probabilistic qualitative-quantitative modelling and information analytics and true detection/false detection (alarms) probabilistic modelling and relevant data.

As for non-intrusive control methods, they should go through intensive R&D technological programmes to develop advanced non-intrusive detection technologies, such as: bio-chemical very-low concentration agent detection, high definition gamma 3-D imaging, muons imaging ... etc.

EU-border protection should certainly go through the development of a risk-assessment information-led customs control strategy supported by advanced non-intrusive detection technologies⁴.

The success of EU initiatives of implementing a risk-based information-led customs control strategy depends, amongst others, upon innovative R&D activity programs that are within the field of actions of our scientific community of experts, engineers and researchers.

It is a great challenge that opens great opportunities for our community.

¹ World Trade Statistical Review 2019. https://www.wto.org/english/res_e/statis_e/wts2019_e/wts2019_e.pdf

² “A guide to risk analysis and customs controls”. Ad hoc expert group on the follow-up to the Maastricht report, Office for Official Publications of the European Communities, 1999 ISBN 92-828-4984-8.

³ WCO annual report, “2017 WCO Illicit Trade Report”. http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/enforcement-and-compliance/activities-and-programmes/illicit-trade-report/itr_2017_en.pdf?db=web

⁴ Commission Staff Working Document, “Accompanying the document Report from the Commission to the Council and the European Parliament Second Progress Report on the implementation of the EU Strategy and Action Plan for Customs Risk Management.” Brussels, 20.7.2018, SWD (2018) 380 final. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018SC0380&from=EN>

The 56th ESReDA seminar was held on 23-24 May 2019, hosted by [Johannes Kepler University \(Institute for Stochastics and Linz Center of Mechatronics\)](#) Linz, Austria. The final proceedings of the 56th ESReDA Seminar will soon be available at [ESReDA website](#) for public consultation and free downloading in compliance with ESReDA politics of free dissemination of scientific and technical knowledge.

Forthcoming ESReDA SEMINARS

The 57th ESReDA Seminar



Luís Andrade Ferreira
University of Porto,
Portugal



Bernardo Vicente
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Universitat Politècnica de
València,
Spain

The 57th ESReDA Seminar on Advances in Reliability, Risk and Safety Analysis with Big Data 23-24 October 2019, Valencia, Spain

Industry 4.0 is an industrial action that corresponds to the increasing integration of industrial production and information and communication technologies. It includes different aspects, among them cyber-physical systems, big data, internet of things, augmented reality, cloud computing and cognitive computing.

With recent improvements in sensor technologies, including miniaturization, performance, cost and energy consumption and in information systems resulting in increased functionality at lower costs, obtaining very important quantities of data from running industrial equipment in a cost-effective manner is now a standard practice.

To treat all the data gathered by the sensors and to transform it in useful information, industries seek to make a greater use of Artificial Intelligence (AI), which can be defined as the science and engineering of automated problem solving. There are several AI techniques, as are Machine Learning, Predictive Modelling and Deep Learning.

Among the most promising applications of these concepts can be found in Reliability, Risk and Safety Analysis. In seeking, opportunistically, the benefits from these new technological capabilities, it is important to remain critical and to address potential side or adverse effects as well especially for high-risk industries where errors can become dramatic. It is the role of the ESReDA association to organise an expert debate and further collaborative work on this topic.

For this 57th ESReDA Seminar we are concerned and invite to focus on Big Data challenges and applications. So the main topics will be the discussion of the following subjects: Retention and quality of data; Data analytics; Feature selection and extraction; Identifying potential biases; Data ownership and security; Databases.

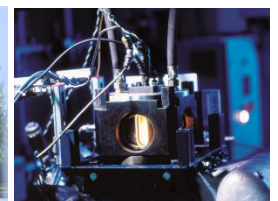
The main point is: what can be done to improve the management of reliability, risk and safety making good use of these new capabilities?

This Seminar will be a forum to explore and discuss these topics. Authors are invited to present their proposals, based on their knowledge and experience, bringing new ideas, concepts, theories and applications.

The Seminar is aimed at addressing issues met by different industries. Papers are welcome from industrialists, consultants, universities, R&D organisations, ...

The 57th ESReDA seminar will be held on 23-24 October 2019, hosted by the Technical University of Valencia and supported by the research and educational center [C-Motores Termicos](#).

More about at [ESReDA website](#).



Forthcoming ESReDA SEMINARS

The 58th ESReDA Seminar



Kaisa Simola
EC JRC
Petten, The Netherlands



Zdenko Simic
EC JRC
Petten, The Netherlands

The 58th ESReDA Seminar on Using Knowledge to Manage Risks and Threats: Practices and Challenges

9-10 June 2020, Alkmaar, The Netherlands

will be held on the 9th-10th June 2020, hosted [European Commission Joint Research Centre](#) (EC JRC), Taqa Theater De Vest, Alkmaar, the Netherlands.

High-risk industries, critical infrastructures, and urban settlements benefit from many decades of experience from risk management and regulation in different domains. Best practices have been formalised, research and development programs have been completed, and workers have been trained to acquire the available knowledge and transfer know-how. Risk analysis helped actors to better know and foresee the systemic risks, while the analysis of events, accidents and crisis have generated hindsight knowledge that remains useful to face the emerging risks and unexpected events.

Both risk management and knowledge management are still developing and maturing theoretically and in practice. While it is easy to see connection between knowledge and risk, they seem to be studied and practiced almost independently by different communities. This seminar is also about exploring existing and potential relations and complementarity between knowledge and risk management.

Exponentially developing knowledge is helping to better face with emerging risks from continuous innovation and increasing complexity. However, even for old systems, the question is "how difficult is it to apply existing knowledge to manage and regulate related risks". Knowledge is mostly applied by people and a large proportion resides in them rather than disembodied sources; individual and collective skills and practices to produce and use knowledge are seldom highlighted. Knowledge remains a broad term that covers many distributed phenomena with various sources (from data and information to expertise), forms (from tacit to explicit), types (from generalized principles to specific cases), dimensions (from individual to social) and is addressed by various scientific disciplines (engineering, ergonomics, management, sociology,...). This likely raises numerous important questions, among them, e.g.:

What knowledge is required to manage and regulate risks for old and new technologies?

- How to combine knowledge and imagination for foresight in risk assessment and management?
- How to manage knowledge needs in engineering design and optimization for both derivative and disruptive technologies?
- How to best use past knowledge? Could it become obsolete for present and future situations?
- What kind of knowledge is useful to identify and interpret early warning signs?
- How to integrate reported accident/incident investigation data into the knowledge base required to manage and regulate risks for old and new technologies?
- How to use big data and machine learning to complement experts and improve existing knowledge?
- What about real practices at work? -How is knowledge different from knowing? How is knowledge best embedded in actual professional practice?
- Is using knowledge automatic? What artefacts and boundary objects help to establish the links between knowledge, risk and safety and practices?
- Are the characteristics of skills and know-how acquisition and transmission really integrated in the engineering processes and knowledge management processes? How do they integrate memorization issues?
- What is the role of case based learning and how does this vary from the teaching of general principles and theories for risk management and regulation?
- How is knowledge influenced or disturbed by different pressures (production, political, economic, and managerial)? Is there a pressure for knowledge when we speak about risk rationale? How can these pressures be managed?



The 58th ESReDA seminar will be a forum for exploring these and other related questions. We aim to discuss theories, concepts, and experiences of enhancing the use of knowledge for better risk management and governance. Authors are invited to present their research and operational proposals and raise challenges, but also to discuss as well successes and failures in enhancing risk management through better use of risk knowledge. We want to encourage new ideas, scientific papers, conceptual papers, case studies and cross-sectoral and inter-disciplinary research on the theme of challenges and practices for using knowledge in risk management and governance. This seminar will bring together researchers, practitioners, specialists and decision-makers to discuss strategies and practical experiences.

Papers for the seminar are invited from various stakeholders, from practitioners to researchers (industrialists, regulators, safety boards, universities, R&D organisations, engineering contractors and consultants, training specialists) and could address different sectors:

- Energy sector: nuclear and non-nuclear (e.g. fossil, renewables) power plants and networks.
- Process industry: oil and gas, chemical and petrochemical facilities, industry 4.0.
- Transport (rail, road, air and maritime): supply and distribution network, operations, emerging such as driverless cars.
- Aerospace industry.
- Critical infrastructure: electricity, water, telecommunications, information systems.
- Public sector and government
- Urban planning and management.

This seminar is aimed at addressing issues, risks (industrial, natural, na-tech...) and threats (malicious, cyber-security, terrorism) met by different industries, critical infrastructures and urban settlements.

Other topics may be included if they fit well within the theme of the seminar and are related to using knowledge to manage risks and threats, such as product safety, food safety, biotechnology, sanitary crisis.

The **call for papers** is available at [ESReDA website](#).

Forthcoming Conferences & Seminars



Enrico Zio
General Chair
Politecnico di Milano,
Italy
CRC, MINES ParisTech,
Sophia Antipolis,
France

ESREL 2020 & PSAM 15: 30th European Safety and Reliability Conference and the 15th Probabilistic Safety Assessment and Management Conference

21-26 June 2020, Palazzo del Cinema, Venice, Italy

The conference combines the [30th European Safety and Reliability Conference and the 15th Probabilistic Safety Assessment and Management Conference](#), and will be held in Venice, Italy, at Palazzo del Cinema, from June 21 to June 26, 2020. It will be a unique World Exposition (a real "Expo Tech") of scientific methodologies and technical solutions for the reliable design and operation of components and systems, for the prevention and management of risk in complex systems and critical infrastructures.

This Conference takes place only every eight years (Crete 1996, Berlin 2004, Helsinki 2012... and now Venice 2020) and brings together the TOP experts of the World in the science and practice of reliability and safety. It is a unique opportunity to advance knowledge in all fields of reliability and safety, by sharing achievements and challenges. It provides a forum where to strengthen the multidisciplinary network of competent professionals, which is needed to face today's challenges in our rapidly evolving "risky" World: come and contribute to making it safer.

It is for contributing to the developments in the direction of a smart and sustainable World that you are invited to participate as main actor to the ESREL 2020 PSAM 15 Expo Tech Conference.

For more information visit [ESREL 2020 & PSAM 15 website](#).

For any question, email: ESREL2020PSAM15@aramis3d.com



Terje Aven
General Co-Chair
University of Stavanger,
Norway



Don't miss the opportunity to contribute and participate to ESREL 2020 PSAM 15, the TOP conference in 2020 on Safety and Reliability!

Forthcoming Conferences & Seminars



André Lannoy
ESReDA Honorary
Member,
IMdR, France

Taking into account the ethical dimension to better control risks

"Les Entretiens du Risque" (Risk Talks) are organized by IMdR (Institut pour la Maîtrise des Risques, French Institute for risk management, dependability and safety) in **Paris** on **December 3rd** and **4th**, **2019**, at the Carré des Sciences of the Ministry of Higher Education, Research and Innovation.

Ethics in enterprise: a hot topic

Ethics is certainly not a new subject. Ethical reflections have indeed accompanied the development of Western societies for more than 2,000 years.

However, since the 1980s, the growing impact of finances, globalization and the protection of the environment has given rise to new dimensions of ethical reflection for the companies. The debate between shareholder responsibility and broader responsibility towards other stakeholders is today potentially a topical subject potentially a source of risk.

Taking account of the ethical dimension in risk management

The Entretiens du Risque 2019 will deal with taking into account the ethical dimension in controlling risks in all business sectors. These meetings will open the debate on the impact of the ethical dimension in the control of risks. Which contributions? Which orientations? These talks want to be an opportunity to bring together decision makers from different industrial and societal fields, engineers, experts, researchers and authorities to discuss this issue.

Laurence BAILLIF
President of the Program Committee

Other Conferences and Seminars

ESREL 2019 – the 29th Annual European Safety and Reliability Conference

22-26 September 2019, Hannover, Germany. Call for papers at the [ESREL 2019 website](#).

CRITIS 2019 – the 14th International Conference on Critical Information Infrastructures Security

23-25 September 2019; Linköping,, Sweden. Call for papers at the [CRITIS 2019 website](#).

ESReDA Members, you are kindly invited to contribute to the ESReDA newsletter sharing news, announcement of events, your experiences, ideas, etc. You are supposed to elaborate proposals to create new Project Groups, host ESReDA Seminars or initiate collaborative activities.

ESReDA: European Safety, Reliability & Data Association

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