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ELSE - EUROPEAN LEADERSHIP FOR SAFETY EDUCATION

SYLLABUS

LEADERSHIP FOR SAFETY
ADVANCED TRAINING PROGRAM

NOVEMBER 7, 2021

Leadership for Safety Advanced Training Program[1]

I. OBJECTIVES

This innovative advanced training program has been developed in the frame of the European Leadership for Safety Education (ELSE) project, funded by the European Commission. Its main objectives are to (1) strengthen participants' understanding of issues related to leadership for safety in the context of complex organizations and (2) help them develop the ability to critically and knowledgeably practice leadership skills in the nuclear and radiological working environments—which are characterized by high levels of regulation and often competing objectives. Using a multidisciplinary approach that draws on the latest academic research results, and includes the performance of a personal project supervised by a senior expert, this advanced training program is designed to complement existing training curricula currently provided by nuclear sector organizations such as the International Atomic Energy Agency (IAEA) and the World Association of Nuclear Operators (WANO).

The annual ELSE training cycle is composed of a 2-week, face-to-face session in September at Côte d'Azur University (UCA, Nice France), prepared for by attending the ELSE massive open online course (MOOC) (20 to 30 hours of personal work) and followed by a personal leadership-related tutored project developed over a period of 6 months. The ELSE University Diploma is delivered after the 2-day concluding session (face-to-face or online), held in June of the following year.

The ELSE program is designed to:

- Expose participants to the most recent and interdisciplinary research on the topic of leadership for safety. Rather than adopting a traditional leader-centric approach, this program focuses on leadership as a process that is embedded in collective organizational dynamics. Recent research indicates that leader-centric theories fail to explain the link between leaders' characteristics and organizational performance. The latter appears be correlated with the collective cultural traits of organizations rather than to types of leadership styles. Leadership as a process focuses attention on leadership activities that enhance the influence on and interactions with followers, to increase desirable organizational outcomes. It accounts for organizational complexity and the need to uncover mechanisms that explain the relationship between inputs (e.g., leadership-related activities) and outputs (e.g., organizational performance).
- Enhance managers' capacities for reflexivity, in particular being able to "see through" safety-related artefacts such as regulations, rules, procedures, and technological processes to identify and address safety issues effectively—as close as possible to their roots and together with their teams, management colleagues, and stakeholders.
- Prepare trainees to deal effectively with uncertainty in their work environment, thus increasing the high reliability and resilience levels of their organizations. Uncertainty itself is a source of risk that can be reduced but not completely eliminated. However, awareness of uncertainty allows organizations to maintain high levels of attention to safety in both routine and crisis situations.
- Provide a mix of academic and professional input, through lectures, exercises, case studies, personal work, feedback and debriefing sessions, and individual evaluations of progression. Trainees learn

[1] This publication was produced with the financial support of the European Union. Its contents are the sole responsibility of its authors and do not necessarily reflect the views of the European Union.

about theory related to leadership for safety and develop the practical skills they need to implement the newly acquired knowledge in their everyday work. They learn to navigate easily from concept to practice, because exercising leadership for safety requires them to alternate between “high beam” and “low beam” vision.

II. DATES AND DURATION (CYCLE 2022/2023):

- Kick off online meeting, July 4 2022: A 2-hour session to introduce the participants (about 25 trainees and the ELSE pedagogical team) and present the ELSE training organization and administration;
- ELSE MOOC attendance: Preparatory online course introduces the key multidisciplinary notions related to ELSE training, with completion of the MOOC expected to require about 25 hours of online personal work;
- Two-week, face-to-face training session: 5–16 September 2022, Université Côte d’Azur, Nice, France;
- Individual current-position-related project: Part-time from October 2022 to April 2023, with tutoring from the ELSE project experts;
- Training synthesis and evaluation: 5–6 June 2023 (in Nice, or attended online)

A Certificate of Attendance will be issued to all participants who attend the full program The “Leadership for Safety University Diploma” will be awarded by the Université Côte d’Azur (France) upon successful completion of all academic requirements (see Chapter VII below for more information).

III. WHO SHOULD ATTEND?

The ELSE training program is intended for professionals from the nuclear sector (regulatory organizations, industry, or services) who have junior or mid-career managerial functions. Participants should be in positions that involve operational or functional responsibilities, with safety or radiological protection implications. Earlier participation in initiation courses on leadership for safety is a plus.

Good knowledge of the English language is necessary.

IV. LEARNING OUTCOMES

The training program is focused on leadership development. Participants will:

- Acquire an in-depth comprehension of the direct or indirect implications of behaviors, organizational dynamics, and underlying beliefs and values related to nuclear-safety performance;
- Understand and reflect on the historical perspective, underlying mechanisms, and ethics of leadership for safety;
- Develop a capacity for reflexivity and learn how to effectively exercise leadership for safety in inherently complex and highly regulated nuclear and radiological environments, in both routine and emergency situations;
- Develop both multidisciplinary and international outlooks on the topic, through interactions with senior experts from different countries, by understanding the logic and principles that underlie the regulatory requirements set by the IAEA, and by engaging in lasting peer-networking opportunities.

V. PROGRAM

The following training program has been designed according to exchanges among more than 25 international experts, that took place during the ELSE scientific workshop in Nice, January 21–24, 2020. The exchanges and debates resulted in a consensus on the definition of the leadership for safety concept; they also helped identify key elements of the training content and the most relevant pedagogical methods. Three key points emerged:

- Leadership for safety results from an articulation of two different but interconnected key concepts: safety management (emphasizing managed safety that requires leadership processes) and leadership as a process;
- The relevant focus is not on individual leader characteristics but on the leadership process that involves exercising influence over individuals and teams;
- This influence process is embedded in complex organizational dynamics that shape the group's culture traits.

Accordingly, the training is organized into three complementary and closely interconnected modules. Modules 1 & 2 take place during the 2-week face-to-face session at UCA and build on the knowledge basis presented in the ELSE preparatory MOOC. The timetable in § VIII shows the pedagogical succession of courses, and § IX provides a synopsis for each course. Brief curricula vitae of the lecturers can be found in § X.

Module 1 addresses elements of managerial issues, which are relevant to exercising leadership for safety in working environments that are characterized by high levels of risk. Usually, safety is encompassed in formal regulations, standards, rules, and procedures that embody collective experience feedback. However, its actual performance is partly governed by local cultural traits ("safety culture") and behaviors ("safety climate"). Therefore, management of safety cannot be reduced to overseeing the correct implementation of a normative framework; it also must involve addressing the tensions that emerge from apparent contradictions to the objectives of safety versus profitability, production, quality assurance procedures, and communication. Although this requirement applies at all times, an in-depth understanding of these tensions becomes critical in the face of unexpected events.

Moreover, though uncertainty may be maximal at times of crisis, it always is present in various and sometimes insidious forms; dealing appropriately with it is part of the art of managing safety, particularly in the context of high-reliability organizations, which at times may be falsely perceived as having overcome every source of uncertainty.

Module 2 focuses on leadership for safety. It presents the broader concept of leadership from an historical- and organizational-dynamics perspective. It analyzes the underlying mechanisms of the leadership process, that unfold within organizations and are governed partly by social and emotional aspects of human inter-relations and partly by human–technology interactions.

According to the elements of knowledge introduced by the MOOC and those covered in Modules 1 and 2, the training gradually focuses on the practice of leadership for safety in the context of nuclear sector organizations (operators or regulatory organizations), with the help of dedicated case studies based on real-life situations.

Module 3 consists of a personal, 6-month tutored project on the theme of leadership for safety, developed by trainees on a part-time basis and in the context of their current professional positions. This personal project is elaborated on and followed through with the support of a referent expert provided by the ELSE Project. The project's outcome will be presented to the ELSE pedagogical team at the end of the training and will account for 40% of the evaluation towards the delivery of the UCA's leadership for safety diploma (with Modules 1 & 2 accounting for 30% each).

ELSE Program Outline

1. **MODULE 1: From regulated safety to managed safety in high-risk environments**
   - **1.1. Managing human and organizational risk factors**
     - 1.1.1. Evolution from risk management to safety management: regulated versus managed safety, paradoxes, and tensions
     - 1.1.2. Crisis versus routine management
     - 1.1.3. Safety culture (values and beliefs)/safety climate (behaviours): academic and professional outlook
     - 1.1.4. International safety standards in the nuclear industry: historical perspective and evolution
   - **1.2. Dealing with uncertainty in high reliability organizations**
     - 1.2.1. High reliability organizations and resilience: characteristics
     - 1.2.2. Uncertainty, complexity, and organizational limits: implications for safety
     - 1.2.3. Collective and individual ways of dealing with uncertainty
       - A. Dealing with uncertainty in the collective context: mindfulness, flexible rules, autonomy
       - B. Understanding Individual responses to uncertainty: a psychology outlook
     - 1.2.4. How to foster learning in organizations
       - A. Organizational learning: key processes
       - B. Knowledge management: key concepts and their practical use
2. **MODULE 2: Leadership for safety**
   - **2.1. Understanding organizational dynamics**
     - 2.1.1. Organizational components and their interactions
     - 2.1.2. Social and emotional aspects of organizations – human–technology interactions
   - **2.2. Leadership: Definition, mechanisms, practices**
     - 2.2.1. Leadership: Definition and historical evolution of key concepts
     - 2.2.2. Mechanisms and practices of leadership as process
   - **2.3. Developing leadership for safety**
     - 2.3.1. From leadership to leadership for safety
     - 2.3.2. Mechanisms and practices of leadership for safety
     - 2.3.3. Leadership for safety in the nuclear sector context
3. **MODULE 3: Developing effective leadership practices for improving safety in the nuclear sector**
   - **3.1. Personal project**
     - 3.1.1. Application of knowledge acquired in Modules 1 and 2 to identify and implement new leadership practices for improving safety in trainees' organizational context
     - 3.1.2. Written report
   - **3.2. Oral presentation of results**

VI. PEDAGOGICAL METHODS

PREPARATORY ELSE MOOC

This MOOC is developed by the ELSE international pedagogical team, in cooperation with the Applied Sciences Institute of Toulouse (INSA Toulouse, France). It is composed of two "units" that introduce and illustrate the context and key concepts of safety management and leadership in high-risk industries. It takes about 25 hours to cover these two units. This MOOC is freely available online through INSA web platforms (https://seamonline.insa-toulouse.fr/). The ELSE MOOC includes a "log book" to be used by students for registering their personal notes as they go through the course. The attention of ELSE diploma trainees is

drawn to the importance of this log book; the lectures, exercises, and dialogue with attendees during the ELSE face-to-face training will refer regularly to the MOOC contents and to the trainees' personal input.

ELSE MOOC attendance is sanctioned by a certificate of attendance, which will be required at the opening of the ELSE face-to-face course.

COURSES

Lectures by senior academic and nuclear safety experts, case studies, discussions, and practical skills sessions will compose the first two-week part of the training program. Small class size will encourage discussions and participation. Mentor-led discussion sessions with participants will focus on the practical application of concepts/theories and allow for open sharing of information and experiences. In particular:

- Lectures by senior academic and nuclear safety experts will allow deepening of the understanding of the key concepts presented in the MOOC.
- Debriefing sessions will focus on the practical application of classroom work and allow for information and experience sharing. The ultimate objective is to develop participants' reflexive capabilities.
- Illustrative case sessions in groups of 3 or 4 persons where trainees will elaborate illustrative case studies based on their own experience. These cases will allow to apply the concepts and models developed during the courses in real-life situations

PERSONAL PROJECT ORGANIZATION

Trainees will be divided into four groups. Group supervision will be provided by senior researchers and/or nuclear industry actors.

Personal project supervision involves individual and collective sessions:

- October/November: Organization of trainees' individual interviews (1 hour per student)
- December: Organization of group interview (2 hours per group)
- January/February: Organization of individual interviews (1 hour per student)
- March: Organization of group interview (2 hours per group)
- Mid-May: Project report submission

VII. TRAINING PROGRAM EVALUATION

Trainee evaluation will cover each of the three modules:

1. From regulated safety to managed safety in high-risk environment (Coefficient 1)
   a. Illustrative case study (managed safety dimension): 30%
   b. Trainee evaluation (after the 2-week course): 30%
   c. Trainee evaluation (final session): 40%
2. Leadership for safety (Coefficient 1)
   a. Illustrative case study (leadership dimension): 30%
   b. Trainee evaluation (after the 2-week course): 30%
   c. Trainee evaluation (final session): 40%
3. Developing efficient leadership practices for improving safety in the nuclear sector (Coefficient 2)
   a. Written current position-related project report note: 60%
   b. Oral presentation grade: 40%

A weighted average of 10/20 or above will lead to the award of the "Leadership for Safety University Diploma" by the Université Côte d'Azur.

The efficiency of the training program also will be evaluated through three steps:

- Evaluation of trainee's knowledge and impressions at T0 T1 T2 T3
- Training evaluation by trainees

Evaluation of training in trainee membership organizations

VIII. ELSE PROGRAM TIMETABLE

Colour code	Lecture	Case study	Debriefing session	Illustrative case study	Trainee role play session	Course evaluation	Trainee test

ONLINE KICK-OFF MEETING 4 JULY 2022:

Introduction of trainees and pedagogic team members
ELSE project presentation JR
Training presentation RK
Q&A
Course evaluation T0: pre-training competences evaluation

MOOC: 4 JULY - 30 AUGUST 2022

This MOOC is freely available online through INSA web platforms (https://seamonline.insa-toulouse.fr/).

INTENSIVE TWO-WEEK COURSE: 5-16 SEPTEMBER 2022, UNIVERSITÉ CÔTE D'AZUR, NICE, FRANCE

Week 1

Monday		Tuesday		Wednesday		Thursday		Friday	
9h – 9h30 Welcome 9h30 – 10H30 2-week course presentation 10h 30 – 11h Evaluation T1		9h30 – 11h00 2.1.1 Organizational dynamics: components and their interactions (CT or RK)		9h30 – 11h 1.1.4 International safety standards: historical perspective and evolution (DL)		9h30 – 10h30 1.2.2 Uncertainty, complexity, and organizational limits – implications for safety (KP)		9h30 –11h00 Illustrative case studies by group G1 & G2	
11h15 – 12h30 1.1.1 Evolution from risk management to safety management: regulated versus managed safety, paradoxes & tensions (BJ)		11h – 12h30 1.1.3 Safety culture & climate (VL & NK)		11h – 12h30 2.1.2 Social and emotional aspects of organizations (YG)		10h30 – 12h30 G1 Case study 4 (KP)	10h30 – 12h30 G2 Illustrative cases (by group with tutoring) (CT)	11h –12h30 1.2.3 B Understanding Individual responses to uncertainty: a psychology outlook (RF)	
12h30-14h lunch break		12h30-14h lunch break		12h30-14h lunch break		12h30-14h lunch break		12h30 –14h lunch break	
14h –16h G1 Case study 1 (BJ)	14h –16h G2 1.1.2 Crisis versus routine management (JR)	14h –16h G1 Case study 2 (VL)	14h – 16h G2 Debriefing & questions on lessons learned	14h00 – 16h00 1.2.1 High reliability organizations and resilience: characteristics (RK)		14h – 16h Illustrative cases (by group with tutoring) (RK)	14h00 –16h00 G2 Case study 4 (KP)	14h – 16h G1 Role play exercise (RF)	14h –16h G2 Debriefing & questions on lessons learned
16h–16h30 coffee break		16h–16h30 coffee break		16h–16h30 coffee break		16h–16h30 coffee break		16h–16h30 coffee break	
16h30 – 18h30 G1 1.1.2 Crisis versus routine management (JR)	16h30 – 18h30 G2 Case study 1 (BJ)	16h30 – 18h30 G1 Debriefing & questions on lessons learned	16h30 – 18h30 G2 Case study 2 (VL)	16h30 – 18h30 G1 Case Study 3 (YG)	16h30 – 18h30 G2 Case study 3 (RK)	16h30 – 18h30 1.2.3.A Dealing with uncertainty in a collective context: mindfulness, flexible rules, autonomy (RSK)		16h30 – 18h30 G1 Debriefing & questions on lessons learned	16h30 – 18h30 G2 Role play exercise (RF)

Week 2

Monday		Tuesday		Wednesday		Thursday		Friday
9h30 – 11h00 Illustrative cases (by group with tutoring) (RK + CT)		9h30 – 12h30 2.2.1 Leadership: Definition and historical evolution of key concepts 2.2.2 Mechanisms and practices of leadership as process (DD and/or CP)		9h30 – 10h-30 2.3.1 From Leadership to Leadership for Safety (CP)		9h30 – 12h30 2.3.3 Leadership for safety in the nuclear sector context (VN)		9h30 – 12h30 Presentation by trainees of illustrative cases
11h00 – 12h30 1.2.4. Knowledge management: practical use in the nuclear industry (JLE)				10h30 – 12h30 G1 Case study 8 (CP)	10h30 – 12h30 G2 Debriefing & questions on lessons learned			
12h30 – 14h lunch break		12h30-14h lunch break		12h30-14h lunch break		12h30-14h lunch break		12h30-14h lunch break
14h – 16h G1 Case study 5 (JLE)	14h – 16h G2 Case study 6 (ND)	14h00 – 16h00 G 1 Case study 7 (CP)	14h00 – 16h00 G 2 Illustrative cases	16h30 – 8h30 G1 Debriefing & questions on lessons learned	16h30 – 18h30 G2 Case study 8 (CP)	14h – 16h G1 Case study 9 (VN)	14h – 16h G2 Case study 10 (NK)	14h – 16h TRAINEE EVALUATION (modules 1&2)
16h –16h30 coffee break		16h – 16h30 coffee break		16h – 16h30 coffee break		16h – 16h30 coffee break		16h – 16h30 coffee break
16h30 – 18h30 G1 Case study 6 (ND)	16h30 – 18h30 G2 Case study 5 (JLE)	16h30 – 18h30 G1 Illustrative cases	16h00 – 18h30 G 2 Case study 7 (CP)	16h30 – 18h30 2.3.2 Mechanisms and practices of leadership for safety (NK + CT)		16h30 – 18h30 G1 Case study 10 NK	16h30 – 18h30 G2 Case study 9 (VN)	16h30 – 17h30 Presentation of personal project (Module 3) (JR+RK) 17h30 – 18h00 Evaluation T2

The precise composition of the pedagogical team is still to be confirmed.

BJ – Benoit JOURNE
CP – Colin PILBEAM
CT – Catherine THOMAS
DD – David DENYER
DL – Didier LOUVAT
JLE – Jean-Louis ERMINE
JR – Jacques REPUSSARD
KP – Kristina POTOCNIK
ND - Nicolas DECHY
NK – Natalia JUBAULT KRASNOPEVTSEVA
RF – Rhona FLIN
RK – Renata KAMINSKA
RSK – Ravi S. KUDESIA
VL – Valérie LAGRANGE
VN – Vincent NYS
YG – Yoann GUNTZBURGER

Final training synthesis and evaluation: 5-6 June 2023 (in Nice, or attended online)

Monday	Tuesday	Wednesday	Thursday	Friday
9h30 – 12h30 4 Parallel sessions of presentation and discussion of three individual project reports (30 minutes per report, followed by a group debriefing on lessons learned)	9h00– 11h00 Collective exchange of views, with participation of two senior experts 11h00-12h30 Trainee evaluation (Module 1)			
12h30-14h lunch break	12h30-14h lunch break			
14h – 16h 4 Parallel sessions of presentation and discussion of two individual project reports (30 minutes per report, followed by a group debriefing on lessons learned)	14h-15h30 Trainee evaluation (Module 2)			
16h–16h30 coffee break	15h30–16h00 coffee break			
16h30-18h30 3 Parallel sessions of presentation and discussion of two individual project reports (30 minutes per report, followed by a group debriefing on lessons learned)	16h00 – 17h30 Concluding session ELSE evaluation online questionnaire Attendance Certificates 17h30-18h00 Evaluation T3			

IX. COURSE SYNOPSIS

Evolution from risk management to safety management: regulated versus managed safety, paradoxes, and tensions (1.1.1) – Benoit JOURNE

Keywords: tensions, resilience, human and organizational factors, safety management practices

Synopsis: The aim of the session is to analyze safety management through the lens of the multiple tensions every complex organization faces, reflected in the tension between regulated and managed safety. Among the main tensions identified in the academic literature, we emphasize "anticipation" versus "resilience," "formal rules" versus "actual practices," "managers" versus "occupational groups," and "safety versus efficiency." Safety management is not meant to suppress such tensions, but to have the responsibility of designing and implementing acceptable balances and compromises. It aims to develop the ability to identify and collectively discuss safety issues embedded in day-to-day professional activities that are encompassed by quality assurance procedures, production objectives, and the local culture of interpersonal relationships. We analyze the ways in which nuclear power operators and other high-risk industries succeed–or not—in doing so.

This session draws from academic literature on human and organizational factors for safety. The MOOC (Unit 2, Part 1) will introduce the key concepts. Using the case study method, these concepts will be further explored during the face-to-face session at the University Côte d'Azur in Nice (Case Study 1).

Crisis versus routine management (1.1.2) – Jacques REPUSSARD

Keywords: emergency situations, resilience, work processes, anticipation, response capability, risk mitigation.

Synopsis: When a crisis situation occurs as the result of accidental events or other internal or external causes, many operational work processes are affected severely, which potentially affects the resilience capacity of the organization as well as the response of personnel at the individual level. Time scales, quality of available information, degree of uncertainty, degree of autonomy, stakeholders, and objectives are parameters that are likely to change suddenly, possibly to an unknown extent. To mitigate the risk of resulting catastrophic disruptions, it is necessary to anticipate by adjusting essential processes in advance, to ensure (1) their robustness in the event of plausible emergency situations, (2) the availability of highly trained emergency response teams and related resources, and (3) the exercising of personnel more broadly according to practical consequences for themselves and their work processes in potential crisis situations.

This session will build on the learning outcome of the MOOC (Unit 1, Part 1 in particular)

Organizational components and their interactions (2.1.1) – Renata KAMINSKA and Catherine THOMAS

Keywords: structure, culture, coordination, cooperation, tensions

Synopsis: In this session, we will examine how organizations function. Organizations make it possible for individual members to accomplish more than they can on their own. Organization is a tool used by people to coordinate their actions to obtain something they desire. It includes two key elements: structure and culture. The structure is the sum of the ways in which an organization divides its labor into distinct tasks and then achieves coordination among them. Organizational rules and routines can tie disparate organizational units into one functioning whole. The culture is the set of shared values and norms that shapes organizational members' interactions. The choice of an appropriate structure is a big challenge. The design of organizational structure requires achieving a balance of numerous tensions: control versus autonomy, stability versus change, specialization versus integration. The course will highlight that organization is a complex system including emergent mutual influences between organizational structure and human actions.

The MOOC (Unit 1, Part 3) will introduce the key concepts. These concepts will be further explored during the face-to-face session at the University Côte d'Azur in Nice.

Safety culture (values and beliefs)/safety climate (behaviors): academic and professional outlook (1.1.3) - Natalia JUBAULT KRASNOPEVTSEVA Valérie LAGRANGE

Keywords: organizational culture, safety culture, safety climate, values

Synopsis:

Academic outlook: The International Atomic Energy Agency (IAEA) defines safety culture as the "assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, nuclear plant safety issues receive the attention warranted by their significance." The course will put this definition into the perspective of management science research. First, by referring to a three-level framework of organizational culture (basic assumptions, espoused values, and artifacts), the course will highlight the difficulties associated with the definition and operationalization of safety culture; it will show that safety culture (values) is closely related to safety climate (actions), which represents a surface manifestation of safety culture. Second, the course will explore safety culture's part in the broader organizational culture, highlighting that multiple subcultures coexist in organizations. Third, it will highlight that though organizational scholars define safety culture as the solution to consolidation of organizational members around values and redistribution of attention for decision making, the translation of safety and reliability values and principles into operational behavior remains an open question. From this perspective, the implementation of safety culture relates closely to another safety concept, that is, managed safety.

Professional lens: For more than 30 years, drawing lessons from major accidents (in particular Three Mile Island, Chernobyl, Fukushima, but also the Davis Besse incident and non-nuclear accidents) and from its operating experience from the nuclear fleet, the French nuclear operator, Electricité de France (EDF) has developed and enriched approaches and methods to enable everyone to assure their role in the nuclear industry by developing "a questioning attitude, a rigorous and prudent approach and good communication".

These approaches and methods stem from knowledge of the human and social sciences (particularly ergonomics and sociology); they aim to develop a systemic approach in which the interactions between technical systems, people, and organizations are taken into account.

From a presentation of the fundamentals—that is, lessons learned from operating experiences, scientific knowledge, and concepts of the nuclear industry (IAEA, WANO)—the practices implemented by EDF will then be introduced according to real data from the experience of nuclear power plants (NPPs):

- Safety perception approach according to a safety culture questionnaire
- Self-assessment on safety leadership for each level of management

These practices will be resituated in the overall framework of the policy and requirements in terms of safety, safety culture, and human factors for EDF's nuclear fleet.

The MOOC (Unit 1, Part 4) will introduce the key concepts. These concepts will be further explored and illustrated by Case Study (2) during the face-to-face session at the University Côte d'Azur in Nice.

International safety standards in the nuclear industry: historical perspective and evolution (1.1.4) - Didier LOUVAT

Keywords: IAEA safety standards; safety harmonization; standards development; ionising radiation

Synopsis: The IAEA safety standards highlight how authorities and other stakeholders agreed to ensure the safety of activities and facilities using ionising radiation. Developed through a process involving governments and organizations, the contents of these publications are the result of knowledge and experience gained from the use of nuclear technologies, the application of the safety standards themselves, and the consensus built on various cultural understandings of safety-related issues. The lecture reviews the successive standards-development steps, with a focus on the consensus-building process.

The MOOC (Unit 1, Part 7) will introduce the key concepts. These concepts will be further explored during the face-to-face session at the University Côte d'Azur in Nice.

Social and emotional aspects of organizations: Human–technology interactions (2.1.2) – Yoann GUNTZBURGER

Keywords: risk perception, uncertainties, biases, emotions, value judgment, moral acceptability

Synopsis: In this session, we will analyze how risks are seen as individual and social constructs and the roles emotional reflection plays in risk-related decision making. There are two contrasting perspectives regarding the ontological nature of risks: a "hard" perspective, found mostly in engineering science, toxicology, and economics, for which risk can be calculated, and a "soft" perspective, found mostly in sociology, psychology, and neurology, for which risks are mainly subjective and social constructs. Whereas for the former perspective, quantitative assessment can provide objective information about "real" risks, from the latter perspective, all assessment of risks, including from technical experts, involves normative and subjective assumptions such that risk cannot be "objective". This approach rejects the traditional opposition between expert knowledge and laypeople perceptions; it acknowledges a plurality of legitimate perspectives and the influence of cognitive biases in risk assessment. Finally, using a cognitive theory of emotion, this course will highlight the growing acknowledgement of emotional reflection as a legitimate form of cognition and knowledge with regard to value judgments and moral acceptability of risks.

The MOOC (Unit 1, Part 2 and Unit 2, Part 2) will introduce the key concepts. These concepts will be further explored during the face-to-face session at the University Côte d'Azur in Nice.

High reliability organizations and resilience: characteristics (1.2.1) – Renata KAMINSKA

Keywords: high reliability organizations, reliability, resilience

Synopsis: The objective of this session is to better understand the characteristics and the functioning of high reliability organizations (HROs) such as nuclear power plants or air traffic control, in which errors, though low in number, have a very high impact. The notion of reliability relates to the notion of resilience, which is the organizational ability to both prevent and recover from crises. Resilience links closely to mindfulness. In this course, we will examine how five specific processes related to mindfulness—preoccupation with failure, reluctance to simplify interpretations, sensitivity to operations, commitment to resilience, and deference to expertise—contribute to high organizational reliability and resilience.

The MOOC (Unit 2, Part 5) will introduce the key concepts. These concepts will be further explored and illustrated by Case Study (3) during the face-to-face session at the University Côte d'Azur in Nice.

Uncertainty, complexity, and organizational limits: implications for safety (1.2.2) - Kristina POTOCNIK

Keywords: organizational limits, sensemaking, cognition, mental models, accidents

Synopsis: In 1984, Charles Perrow argued that certain types of accidents—"normal accidents"—were inevitable in complex, tightly-coupled systems. These accidents typically result from interactions between different system components; they are difficult for designers to foresee and front-line operators to comprehend. Although some HROs operate with very low rates of error (as described in Session 1.2.1 of this program), even very safe systems still suffer occasional catastrophic failures.

In this session, we will examine how limits to human cognition can affect the safety of complex systems. Sometimes these limits are observed in front-line operators who miss or misinterpret cues and anomalies and take the wrong actions (or fail to act at all). Sometimes we see limits in flawed designs, in which designers did not foresee certain combinations of conditions—perhaps because they had never occurred before. We examine the "paradox of almost totally safe systems," which suggests that the safer we make systems by design, the more we degrade the ability of operators to handle abnormal conditions. We examine the implications for safety leadership.

We also use the concept of limits to explain why crucial, safety-related information does not always reach those who need it, and why its significance is not always understood when it does.

We will draw on several case studies to illustrate these ideas, including Bhopal, the loss of the space shuttle Columbia, Air France 447, and the Boeing 737MAX.

The MOOC (Unit 2, Part 6) will introduce the key concepts. These concepts will be further explored and illustrated by Case Study (4) during the face-to-face session at the University Côte d'Azur in Nice.

Collective and Individual way of dealing with uncertainty. Dealing with uncertainty in a collective context: mindfulness, flexible rules, autonomy (1.2.3.A)– Ravi S. KUDESIA

Keywords: uncertainty, rules, autonomy, mindfulness, metacognition

Synopsis: Managing uncertainty requires achieving a balance between minimizing uncertainty (stability/regulated safety) and coping with uncertainty (flexibility/managed safety). First, the course will highlight the role of rules in managing uncertainty: from supporting stability to fostering flexibility through autonomy. Second, it will focus on how to develop managed safety, that is the organizational capacity to proactively cope with unexpected events. Managed safety relies on professional expertise, knowledge, and mindfulness. Mindfulness is the ability to induce active differentiation and refinement of existing categories and the creation of new categories out of streams of events, to develop a more nuanced appreciation of the context and find potential solutions. Third, the course will investigate how mindfulness training operates; mindfulness is a metacognitive practice that concerns the ways people adjust their information processing to the situations at hand. As a metacognitive practice, mindfulness is something we do individually; however, we will see that through our social interactions we can become mindful collectively, at the system level.

The MOOC (Unit 2, Part 4) will introduce the key concepts. These concepts will be further explored during the face-to-face session at the University Côte d'Azur in Nice.

Collective and Individual ways of dealing with uncertainty. Understanding Individual responses to uncertainty: a psychology outlook (1.2.3.B) – Rhona FLIN

Keywords: situation awareness, chronic unease, risk tolerance, decision making

Synopsis: Effective safety management requires an appreciation of how risk and uncertainty influence operational decisions and actions. Investigations of major accidents (e.g., Deepwater Horizon, RAF Nimrod) have indicated failures in situation awareness and decision making, coupled with overconfidence with regard to inherent risks.

In this session, we will focus on the individual psychological processes that relate to both workers' and managers' perceptions of the operational environment, with reference to judgements of risk and uncertainty that influence decision making. Drawing on research findings from higher-risk work settings (including aviation, surgery, offshore oil, and gas production), the concepts of situation awareness, chronic unease, and risk tolerance will be explored in relation to their applications for safety leaders' decision making and the management of uncertainty. One of the presenter's research projects (based at the University of Houston, U.S.A.), which examines whether mindfulness training interventions can be of value in safety-critical work settings also will be described.

The MOOC (Unit 2, Part 3) will introduce the key concepts. These concepts will be further explored and illustrated by role play exercises during the face-to-face session at the University Côte d'Azur in Nice.

How to foster learning in organizations: organizational learning: key processes (1.2.4.A) – Catherine THOMAS

Keywords: learning, experience, superstitious learning, deliberate learning

Synopsis: This course starts with the premise that the ability to learn is an important source of safety and resilience improvement. At the organizational level, learning is defined as a change in an organization's knowledge that occurs as a function of the experience. This course will focus on organizational learning and its subprocesses of creating, retaining, and transferring knowledge. Task performance experience, the context in which it takes place, and knowledge processes are key notions that define organizational learning. The course also will explore the drivers and barriers of the learning processes. More specifically, it will focus on analyzing the risk of superstitious learning in complex environments. Through the implementation of a knowledge management system, deliberate learning is needed to mitigate the occurrence of superstitious learning. Knowledge management systems will be presented in the course that follows.

The MOOC (Unit 1, Part 6) will introduce the key concepts. These concepts will be further explored during the debriefing face-to-face session at the University Côte d'Azur in Nice.

How to foster learning in organizations: knowledge management: key concepts and their practical use (1.2.4.B) – Jean-Louis ERMINE

Keywords: knowledge risks and opportunities, knowledge retention, transfer and evolution, implementation of a knowledge management system

Synopsis: Knowledge management (KM) is a strategic issue for private or public organizations. In 2019, it was the subject of a new international ISO standard which defines the requirements for a corporate KM system.

Knowledge loss is a major risk for safety issues, and knowledge retention and transfer are key problems in safety-based organizations.

This session presents a global and coherent vision of an approach to implement a corporate KM system.

After introducing the problem of knowledge management, the session presents an approach for managing the knowledge capital of an organization. It describes the different phases of implementation of a KM action plan in an organization (virtuous KM cycle). It then focuses on effective implementation of the KM action plan, through analysis of critical knowledge, structuring of a knowledge repository, capitalization of knowledge, knowledge transfer and sharing, evolution of knowledge, and innovation.

The MOOC (Unit 1, Part 6) will introduce the key concepts. These concepts will be further explored during the face-to-face session at the University Côte d'Azur in Nice. They will be illustrated by Case Studies 5 (system based on Return of Experience) and Case Study 6 (system based on Knowledge Capitalization).

Leadership: definition and historical evolution of key concepts (2.2.1) – Colin PILBEAM

Keywords: leader, leadership, paradigm

Synopsis: Interest in leaders and leadership has a long history. In this session, we consider the chronological development of four successive paradigms of leadership, exploring the strengths and weaknesses of each in turn. We begin with heroic models of leadership, taking an individual (entity) perspective. We then consider leadership as the relationship between leader, followers, and goals. Next, we briefly explore who is doing the "work of leadership" through plural conceptions of leadership, including shared and distributed models of leadership, and the achievement of Direction–Alignment–Commitment. Finally, we briefly examine the ways in which leaders shape the organizational and wider environmental context for others through a consideration of Technical and Adaptive Leadership and its application to the problems organizations face.

The MOOC (Unit 1, Part 5) will introduce the key concepts. These concepts will be further explored during the face-to-face session at the University Côte d'Azur in Nice.

Mechanisms and practices of leadership as process (2.2.2) - David DENYER or Colin PILBEAM

Keywords: Direction, alignment, commitment, technical leadership, adaptive leadership, critical leadership

Synopsis: Building on the previous session, this session will further elaborate the Direction–Alignment–Commitment model of leadership and how these activities comprise the work of leadership. We will explore the socially distributed nature of these activities drawing out the implications for leaders and leadership within the organization. The session will also expand upon the Technical–Adaptive model of leadership, differentiating between these two forms and exploring how they separately contribute to the solution of different categories of organizational problems. The practices for achieving these different forms of leadership will be identified and described.

The MOOC (Unit 1, Part 5) will introduce the key concepts. These concepts will be further explored and illustrated by Case Study (7) during the face-to-face session at the University Côte d'Azur in Nice.

From Leadership to Leadership for Safety (2.3.1) - Colin PILBEAM

Keywords: organizational resilience model, tension, leadership, safety leadership

Synopsis: Organizational resilience is the ability of organizations to anticipate, prepare for, respond, and adapt to incremental change and sudden disruptions to survive and prosper. To achieve this, leaders must think "paradoxically," combining defensive with progressive actions and adopting both consistent and flexible approaches creating four ways of thinking about organizational resilience: preventative control, mindful action, performance optimization, and adaptive innovation. Using this model derived from the presenter's recent research, we will explore the tensions surrounding safety faced by leaders in organizations and identify the practices leaders use for successfully managing them.

The MOOC (Unit 2, Part 7) will introduce the key concepts. These concepts will be further explored and illustrated by case study (8) during the face-to-face session at the University Côte d'Azur in Nice.

Mechanisms and practices of leadership for safety (2.3.2) – Natalia JUBAULT KRASNOPEVTSEVA

Keywords: leadership for safety, leadership, influence, generative mechanisms, safety

Synopsis: This session, which concludes the training, aims to bring together the various elements presented in the MOOC and during the previous sessions (safety management, organizational dynamics, leadership as process) to better understand how leadership practices, interacting with the various factors of organizational dynamics, influence safety performance. More specifically, the course will reveal the complex mechanisms that explain the causal relationship between inputs (e.g., leader practices) and outputs (e.g., efficient safety performance). Indeed, the interactions of organizational dynamics and leadership are not easily observable, but their acknowledgement is crucial to advancing our understanding of how leaders exert influence.

The concepts and their articulation explored during this session will be illustrated by Case Study 9. This case study will focus on leadership practices in the nuclear sector and enable better understanding of the theoretical models discussed in this training program.

Leadership for safety in the nuclear sector context (2.3.3) - Vincent NYS

Keywords: leadership for safety, safety culture, nuclear plant management, nuclear safety regulation and control, risks associated to nuclear technologies.

Synopsis: The concepts developed so far through the ELSE Syllabus are relevant for a broad field of activities and technologies, as illustrated through the variety of case studies. This session focuses on the specific relevance of leadership for safety concepts for the nuclear industry, both from the nuclear operator and nuclear regulator points of view. Leadership for safety capability is a regulatory requirement (IAEA Safety Requirement 3 of GSR Part 2 "Leadership and Management for Safety"), as well as key to the development of a sustainable safety culture. Part of the session is dedicated to exchanges with attendees, to enhance their understanding of the implications of the ELSE training in the context of their own professional development. The morning lecture in particular illustrates how the implementation of an integrated management system contributes to sound leadership and provides some practical examples. The afternoon session includes the presentation (in parallel subgroups of 2 hours) of two case studies that illustrate the problem of leadership for safety in the nuclear industry specific context, with perspectives from both an operator's and a regulator's point of view.

The concepts developed in this session will be illustrated by Case Study 10.

X. SHORT CAREER SUMMARY OF LECTURERS AND TUTORS

DECHY Nicolas 1-page CV

DENYER David 1-page CV

ERMINE Jean-Louis 1-page CV

FLIN Rhona 1-page CV

GUNTZBURGER Yoann 1-page CV

JOURNE Benoit 1-page CV

JUBAULT KRASNOPEVTSEVA Natalia 1-page CV

KAMINSKA Renata 1-page CV

KUDESI Ravi S. 1-page CV

LAGRANGE Valérie 1-page CV

LOUVAT Didier 1-page CV

NYS Vincent 1-page CV

PILBEAM Colin 1-page CV

POTOCHNIK Kristina 1-page CV

REPUSSARD Jacques 1-page CV

THOMAS Catherine 1-page CV

CURRICULUM VITAE

Proposed role in the project: case study 7

DECHY, Nicolas (François, Guillaume), born 02 June 1976

Nationality: French and Canadian

Education: Generalist Engineer – Specialisation in Risk and Environment, graduated from Engineering school Mines de Douai (1995-1999) in France.

Language skills: French (1,1,1), English (2,2,2), German (5,5,5)

Membership of professional bodies: ESReDA (European Safety and Reliability Data Association), member of the Board of Directors ; Chairperson of PG; Institut pour la Maîtrise des Risques (IMdR) ; both on accident investigation, learning from events, weak signals, foresight in safety

Present position: Organisational and human factors specialist at IRSN

Years within the firm: 11th year

Key qualifications: human and organisational factors (HOF) assessment and diagnosis of nuclear safety management especially in maintenance outages, subcontracting and emergency management in post-Fukushima actions, root cause analysis of events, training and teaching in accident investigation, barriers to learn and learning capabilities, HOF of safety management.

Professional experience

Date	Location	Company	Position	Description
1999-2000	France	AINF - service company	Engineer, Consulting	Risk analysis, safety case studies for chemical sector (Seveso)
2001-2010	France	INERIS – French public Institute for chemical risk prevention	Engineer and HOF specialist in expert and research position	Engineer in accident investigation, explosion assessment, risk analysis, safety studies for chemical sector, member of the emergency support action unit – In charge of the project to enhance HOF in learning/operating experience feedback in the chemical sector for the Environment Ministry – participation to EC research project such HYSAFE, Integ-Risk
2010-	France	IRSN – French public institute for nuclear safety, radiation protection	HOF specialist in expert and research position	Conducting HOF assessment on safety and radiation protection management during outages (2010-2013), subcontracting (2013-2015), emergency response in the aftermath of Fukushima (2015-); trainer for the ENSSTI – HOF course on Operating experience feedback and event investigation, PhD in organisational learning.

Other relevant information (e.g. publications)

Dechy N., Rousseau J.-M., Dien Y., Llory M. Montmayeul R., (2016) Learning lessons from TMI to Fukushima and other industrial accidents : keys for assessing safety management practices, Proceedings of the IAEA Exploring 30 Years of Safety Culture, 22-26th February, Vienna, Austria

ESReDA (2015), Guidelines for Preparing a Training Toolkit in Event Investigation and Dynamic Learning,

ESReDA (2015), Barriers to learning from incidents and accidents

Dechy N., Rousseau J.-M., Jeffroy F. (2011), Learning lessons from accidents with a human and organisational factors perspective: deficiencies and failures of operating experience feedback systems, Proceedings of the EUROSAFE 2011 conference, Paris

Dechy, N., Rousseau, J.-M. & Llory, M. (2011). Are organizational audits of safety that different from organizational investigation of accidents?, ESREL 2011 Conference, Troyes, France, 18-22 septembre.

Dien, Y., Dechy N. & Guillaume E. (2012). Accident Investigation: from Searching Direct Causes to Finding In-Depth Causes. Problem of Analysis or / and of Analyst? Safety Science, 50 (6), pp 1398-1407.

Dechy, N., Dien, Y., Funnemark, E., Roed-Larsen, S., Stoop, J., Valvisto, T. & Vetere Arellano, A.-L., on behalf of ESReDA Accident Investigation Working Group. (2012). Results and lessons learned from the ESReDA's Accident Investigation Working Group, Safety Science, 50 (6), pp 1380-1391.

Paltrinieri, N., Dechy, N., Salzano, E., Wardman, M., & Cozzani, V. (2012). Lessons learned from Toulouse and Buncefield disasters: from risk analysis failures to the identification of atypical scenarios through a better knowledge management, Journal of Risk Analysis, 32(8), pp 1404-1419.

Dechy N., Bourdeaux T., Ayrault N., Kordek M.-A., Le Coze J.-C. (2004) First lessons of the Toulouse ammonium nitrate disaster, 21st September 2001, AZF Plant, France, Journal of Hazardous Materials 111 pp 131-138

Professor David Denyer BSc (Hons), PhD, FACSS, FCIPD, FBAM, FHEA, FCEBMa, PGCTLAHE

Professor of Leadership and Organisational Change, Cranfield School of Management

PhD, Loughborough University

Fellow Academy of Social Sciences

Fellow British Academy of Management

Fellow Chartered Institute of Personnel and Development

Fellow Higher Education Academy

Fellow Centre for Evidence-based Management

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Summary

David is a Professor, consultant, writer and speaker with an impressive track record of producing high quality research and educating and inspiring both business leaders and academic researchers to make a difference.

Research

David has an international reputation for his research on leadership and change, organisational resilience and high-reliability organisations. He also initiated and continues to promote evidence-based management, encouraging scholars, consultants, and practicing managers to develop evidence-informed organizational practices and decision making.

He has published a large number of important and highly cited articles and book chapters. Publications include over 50 articles, books, book chapters and monographs. You can review his publications here: http://tinyurl.com/ocotezg, which have attracted over 8000 citations on Google Scholar. David produces published output in all forms of media including professional literature and the press. He also regularly speaks at international conferences and delivers keynotes at high-profile events.

Impact and clients

David helps senior leaders in public, private and voluntary sectors to develop safety leadership and organize for resilience and high reliability through executive education work with the Cranfield Centre for Executive Education and consultancy assignments.

David's research on how organizations can better respond to adverse events was selected by the Academy of Social Sciences as an exemplar of social science research that has made a difference to policy and practice. In 2012 he was voted "HR Most Influential UK Thinker" by HR magazine.

Management

David is Professor of Leadership and Organizational Change at Cranfield School of Management. The School of Management prides itself on engaging with practice, while conducting world-class research that makes a difference.

He was Director of Research (2013-2018) and is now Commercial and Development Director responsible for partnerships, innovation and building capability. He is a member of the School of Management Executive team and helps to shape the strategic direction of a World-Leading Management School.

David is a Fellow of the Academy of Social Sciences, the British Academy of Management, the Chartered Institute of Personnel and Development, the Higher Education Academy, and the Centre for Evidence-based Management.

Updated 2020

JEAN-LOUIS ERMINE

Knowledge Management expert

Professor emeritus at *Institut Mines-Telecom*

International consultant

EDUCATION

• Jean-Louis Ermine holds a PhD in fundamental mathematics (Denis Diderot University of Paris) and the diploma of National Research Director in computer science (University of Bordeaux).

PROFESSIONNAL CAREER

• Jean-Louis Ermine began his career as a teacher-researcher at the Universities of Algiers and Bordeaux. He has worked at the French Atomic Energy and Alternative Energies Commission (CEA) as a Knowledge Manager for more than 10 years. From 2003 to 2015, he was a professor at *Institut Mines-Telecom*, successively director of the Information Systems department, associate dean of research and associate dean of innovation. He is currently Professor Emeritus at *Institut Mines-Telecom* and expert consultant in Business Knowledge Management.

SCIENTIFIC ACTIVITIES

• Jean-Louis Ermine has written 8 books and more than 100 articles in peer-reviewed journals and conferences. He is creator and Honorary President of the French Knowledge Management Club since 1999, an association bringing together many francophone companies and the French Academic Association for Knowledge Management (AGeCSO) since 2008.

WORK EXPERIENCE

• Jean-Louis Ermine has been a project manager or advisor in numerous research or industrial Knowledge Management projects in public or private companies and international organizations in France (Industry, Energy, Transport, Defence, Banking, SMEs ...) and abroad (Sonatrach (Algeria), Hydro-Québec, Public Administration (Canada), IPEN (Brazil), National Nuclear Safety Authorities (Asia), United States, UN ...). He was French delegate for ISO International Standards Commission on Knowledge Management (2018-2019)

He is the creator of the MASK Knowledge Management method, which is now widely used in various companies and organizations around the world.

Professor Rhona Flin (PhD, FRSE, FBPsS) **Curriculum Vitae, 2020**

Contact details

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Qualifications

PhD Psychology, University of Aberdeen 1983
BSc Hons Psychology University of Aberdeen 1977

Professional posts

2016 –	Professor of Industrial Psychology, Aberdeen Business School, Robert Gordon University
2015 –	Emeritus Professor of Applied Psychology, University of Aberdeen
1997 - 2015	Chair of Applied Psychology, University of Aberdeen
1985 - 1996	Lecturer, Senior Lecturer, Reader, Professor, Aberdeen Business School, RGU
1981 - 1985	Postdoctoral Research Fellow, Department of Psychology, University of Aberdeen

Selected publications (from 150 peer reviewed papers and 11 books)

Flin, R., O'Connor, P. & Crichton, M. (2008) *Safety at the Sharp End: A Guide to Non-Technical Skills.* Ashgate.

Fruhen, L. & **Flin, R.** (2016) 'Chronic Unease' for safety in senior managers: An interview study of its components, behaviours and consequences. *Journal of Risk Research, 19,* 645-663.

Roberts, R., **Flin, R.** & Cleland, J. (2015) "Everything was fine": An analysis of the drill crew's situation awareness on Deepwater Horizon. *Journal of Loss Prevention in the Process Industries, 38,* 87-100.

Roberts, R., **Flin, R.** & Cleland, J. (2015) Staying in the zone: Offshore drillers' situation awareness. *Human Factors, 57,* 573-590.

Fruhen, L., **Flin, R.** & McLeod, R. (2014) Chronic unease for safety in managers: A conceptualisation. *Journal of Risk Research, 17,* 969-979.

Fruhen, L., Mearns, K., **Flin, R.** & Kirwan, B. (2014). Skills, knowledge and senior managers' demonstrations of safety commitment. *Safety Science, 69,* 29-36.

Fruhen, L., Mearns, K., **Flin, R.** & Kirwan, B. (2014) Safety Intelligence: An exploration of senior managers' characteristics. *Applied Ergonomics, 45,* 967-975.

Fruhen, L., Mearns, K., **Flin, R.** & Kirwan, B. (2013) From the surface to the underlying meaning – an analysis of senior managers' safety culture perceptions. *Safety Science, 57,* 326-334.

Crichton, M. & **Flin, R.** (2004) Identifying and training non-technical skills of nuclear emergency response teams. *Annals of Nuclear Energy, 31/12,* 1317-1330.

Selected grants (from £6.5M)

2019-2021	$850K (NASEM) Mindfulness and Safety Offshore Industry (Co-PI) Houston University
2018–2020	£190K (OGTC) Psychological Barriers to Adoption of New Technology (PI)
2014-2017	£90K (ESRC/ BAE Systems) Product Safety Culture (PI)
2012 -2015	£84K (Maersk) Situation awareness in drill crews (PI)
2012 -2014	£123K (Shell) Chronic unease for safety. (PI)
2009 2011	E94K EU Marie Curie Fellowship. Handovers from the Operating Theatre (CoI)
2007-2012	£2.5M Scottish Funding Council (£1.5M) (+£1M Uni. Aberdeen, St Andrews, Dundee) Scottish Patient Safety Research Network (Lead PI)
2007-2011	£82K Energy Institute/ Shell Senior managers' safety leadership (PI)
2005 -2007	£304K SDO Dynamics of NHS Organizational Culture Change (CoI)
2005 -2006	E60K Eurocontrol/Boeing Assessing safety culture in air traffic control (CI)
2000 - 2002	£195K (Nuclear Industry IMC) Team Skills/ Accident Management (PI)
1998 - 2000	£156K (Nuclear Industry IMC) Accident Management (PI)

YOANN GUNTZBURGER, B. Eng., M.A.Sc., Ph. D.

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PROFILE

- Specializations : Management, ST&S;
- Research interests : Crisis management, risk management, business and professional ethics, organizational complexity, emotions, professional education;
- Research methods : Mixed (qualitative and quantitative).

EDUCATION

2012 – 2017	**Ph. D Management –** HEC Montréal
2010 – 2012	**M.A.Sc in Chemical Engineering –** Polytechnique Montréal
2006 – 2010	**Bachelor in Chemical Engineering –** Polytechnique Montréal

PROFESSIONAL EXPERIENCES

2019 –	**Assistant Professor –** SKEMA Business School (France)
2018 – 2019	**Research Associate –** Polytechnique Montréal (Canada)
2017 – 2018	**Postdoctoral Fellow –** Centre Interuniversitaire de Recherche en Analyse des Organisations (CIRANO) – Risk Group (Canada)
2014 – 2017	**Coordinator – Chair in Ethical Management –** HEC Montréal (Canada)
2012 – 2017	**Research assistant – Chair in Ethical Management –** HEC Montréal (Canada)
2009	**Research project coordinator –** Sumitomo Heavy Industries (Japan)
2007 – 2010	**Research assistant –** Polytechnique Montréal (Canada)

MAIN PUBLICATIONS

Guntzburger, Y., Pauchant, T. C. & Tanguy, P. A. (2019). Empowering Engineering Students in Ethical Risk Management: An Experimental Study, *Science and Engineering Ethics, 25* 911–937

Guntzburger, Y., Johnson, K. J., Martineau, J. T. & Pauchant, T. C. (2018). Professional Ethnocentrism and Ethical Risk Management Efficacy: How Engineers' Emotional Openness Mediates this Complex Relationship, *Safety Science, 109* 27-35

Pauchant, T. C., Martineau, J. T., Guntzburger, Y. & Coulombe, C. (2018). Crisis Management. In R. Kolb (Ed.), *The SAGE encyclopedia of business ethics and society* (Vol. 2, pp. 786-789). Thousand Oaks, CA: SAGE Publications

Guntzburger, Y., Pauchant, T. C. & Tanguy, P. A. (2017). Ethical Risk Management Education in Engineering: A Systematic Review, *Science and Engineering Ethics*, *23* (2) 323-350

Guntzburger, Y. & Pauchant, T. C. (2014). Complexity and ethical crisis management: A systemic analysis of the Fukushima Daiichi nuclear disaster. *Journal of Organizational Effectiveness: People and Performance, 1*(4), pp. 378 – 401

Curriculum Vitae

Benoît Journé is Professor of Management at the University of Nantes (France) and member of LEMNA research Lab. He is also Head of Chaire RESOH at IMT-Atlantique (2012-2022) in partnership with Andra (nuclear waste management), IRSN (French Technical Support Organization for Nuclear Safety), Orano (nuclear fuel recycling), Naval Group (nuclear shipyards).

Education :

- Master in Economics and Management at ENS Cachan and Université Paris 1 Sorbonne.
- PhD Management Sciences at Ecole Polytechnique (CRG Lab)

Research interests : Nuclear Safety Management (Human and Organizational Factors), High Reliability organizations, Organizational Resilience, Crisis Management, Decision making and Sensemaking processes, Pragmatist theory of action, Management tools, qualitative research methodologies (Field studies and direct observation).

Recent research projects :

- He has been Scientific Director of the AGORAS Research Project (2013-2020). This "Post-Fukushima" project aims at improving the Nuclear Safety Governance inside the network of nuclear actors at a French and European level. (https://web.imt-atlantique.fr/x-ssg/projetagoras/index.php/features)
- Member of strategic and scientific steering committee of Foncsi (2015-2021)
- He as carried out research and expertise activities in the domain of Nuclear safety for 20 years, mainly with IRSN (French Technical Support Organization) ASN (French Nuclear Regulator) and EDF (French nuclear licencee).

Recent publications in the domain of safety management and Human and Organizational Factors :

- Journé B, Laroche, H., Bieder, C., Gilbert, C. (Ed.). (2020), *Human and Organizational Factors. Practices and Strategies for a Changing World.* Springer International Publishing, Print ISBN : 978-3-030-25638-8 / Online ISBN : 978-3-030-25639-5

- Bieder, C., Gilbert, C., Journé, B., & Laroche, H. (Eds.). (2018). *Beyond safety training: Embedding safety in professional skills*. Springer International Publishing. Print ISBN : 978-3-319-65526-0 / Online ISBN : 978-3-319-65527-7

- Gilbert, C., Journé, B., Laroche, H., & Bieder, C. (Eds.). (2018). *Safety Cultures, Safety Models: Taking Stock and Moving Forward*. Springer International Publishing. Print ISBN : 978-3-319-95128-7 / Online ISBN : 978-3-319-95129-4

- Detchessahar M. & Journé B. (2018), "Managing Strategic Discussions in Organizations: A Habermasian Perspective", *M@n@gement*, vol. 21 (2), 771-800.

- Eydieux Jérémy, Tillement Stéphanie, Journé Benoît, (2018) « Discuter la sûreté et sa démonstration : négocier ce qui fait preuve », *Négociations*, 2018/2 (n° 30), p. 37-52. DOI : 10.3917/neg.030.0037. URL : https://www.cairn.info/revue-negociations-2018-2-page-37.htm

- Detchessahar M., Gentil S., Grevin A. et B. Journé (2017) « Entre cacophonie et silence organisationnel : concevoir le dialogue sur le travail. Le cas des projets de maintenance dans une industrie à risque », *Gérer et Comprendre*, 130, décembre 2017, pp.33-45.

- Eydieux, J., Journé, B & Tillement S.. (2017). « High-reliability organization seen through interstitial activities". *Gérer et Comprendre English Language*, 2, pp.63-73

- Eydieux, J., Journé, B. et S. Tillement (2016) « La fiabilité organisationnelle au prisme des activités interstitielles », *Gérer et Comprendre*, 126, décembre 2016, pp.15-27.

- Bringaud, V., Journé, B., S. Mbaye et G. Saliou, S. Tillement, (2016), *Le Retour d'Expérience dans les organisations à risques : entre action managériale et dynamique de métier*, Presses des Mines, 150 p.

Natalia JUBAULT KRASNOPEVTSEVA

Natalia Jubault Krasnopevtseva is ELSE Research and Training assistant and Université Côte d'Azur/ SKEMA Business School (France) PhD Student in management. From 2017, she received a scholarship from the University Côte d'Azur to prepare a thesis on leadership for safety in complex environments in the context of the nuclear sector.

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Education :
Master degree in Corporate Strategy and International Development from the University of Nice Sophia Antipolis

Research interests :
leadership, organizing in high-risk environments, resilience, mindfulness, organizational attention and organizational learning, qualitative methodology

Teaching Experience:
University Nice Sophia-Antipolis School of Economics & Business (ISEM)

- Course "Strategic Management" 3rd- year students of "Corporate Strategy and International Development"
- Course " Quality and Process Management" 3rd- year students of "Social and Economics Administration"

Industry Experience:

- 2014-2017 Grant Thornton France, Senior consultant Financial Advisory /Audit
- 2013 IBM France La Gaude, Management Control Assistant, Professional internship
- 2012 Petrol-Energy Company, Corporate Finance analysis, internship

Recent communications in the domain of leadership for safety :

- Jubault Krasnopevtseva N., Thomas C., Kaminska R. (2020) Leadership for Resilient Organizing: a Critical Realist Approach to Revisit the Role of Leadership in High-Risk Organizations, *AIMS XXIXe Conférence Internationale de Management Stratégique*, June 2-5, 2020 (on-line, France)
- Jubault Krasnopevtseva N. (2019) How to Design Rules for Managed Safety to Cope Rather than Diminish Uncertainty?, *29th European Safety and Reliability Conference*, September 22 – 26 , 2019 (Hannover, Germany)
- Jubault Krasnopevtseva N., Thomas C., Kaminska R. (2019) The dynamics of safety risk perception in high reliability organizations, *British Academy of Management 2019 Annual Conference*, September 3-5, 2019 (Aston University, Birmingham, UK)
- Jubault Krasnopevtseva N., Thomas C., Kaminska R. (2019) Deep Leadership: a Critical Realist Approach to Revisit the Role of Leadership in High-Risk Organizations, *EURAM* Colloquium; June 24-26, 2019 (Lisbon, Portugal)
- Jubault Krasnopevtseva N., Thomas C., Kaminska R. (2018) Safety leadership in high risk and highly regulated sectors: A theoretical framework, *34th European Group for Organizational Studies (EGOS)* Colloquium; July 5–7, 2018 (Tallinn, Estonia)

Renata KAMINSKA, Professor of Strategy and Innovation, SKEMA Business School, Université Côte d'Azur (GREDEG), renata.kaminska@skema.edu

Renata holds an undergraduate degree from the University of Western Ontario (Canada), a ppostgraduate Master of Research and a PhD in Management from the University of Nice-Sophia Antipolis. She sits on scientific committees of the KTO Research Centre and TETRIS. In the past, she was scientific director of the STEM executive education program (2000-2005) and of MSc International Business (2013-2017). Since September 2017 she is scientific director of the University Côte d'Azur Master 2 Research in Management and Innovation program. In December 2018 she was appointed deputy director for international development of ELMI Graduate School at the University Côte d'Azur. Her research concerns strategy process, knowledge creation and organizational dynamics with a recent focus on leadership for safety in high-risk contexts.

Main Teaching Areas

Strategy, Open Innovation, Organisational Design, Organization Theory, Knowledge Management, Qualitative Research Methods, Creativity Management

Membership in Academic Networks

Academy of Management, European Group for Organization Studies, KTO Research Center (SKEMA Business School), GREDEG Research Laboratory (UNSA – CNRS 6227), SCIC (société coopérative d'intérêt collectif) TETRIS (Transition écologique territoriale par la recherche et l'innovation sociale).

PhD Supervision

Natalia Jubault Krasnopevtseva « Environnement complexe et leadership en sûreté: le cas du secteur nucléaire » PhD started in October 2017, funded by DESPEG Graduate School, co-supervision with Professor Catherine Thomas (UCA).

Lavika SACHDEVA: « Unconventional organizational forms for complex problems: Hybrid organizations to tackle Grand Challenges » PhD started in October 2020, funded by DESPEG Graduate School, co-supervision with Professor Cécile Ayerbe (UCA).

Funded Research Projects

MEID (Mediterrenean Eco-Industrial Development), European Union funded, MED Program
PARTITA (Career Paths and Networks of Artists on the French Riviera), French government funded, through the UCA^{JEDI} Investment in the Future project, managed by the National Research Agency (ANR), ANR-15-IDEX-01).
ELSE (The European Leadership for Safety Education), European Union funded

Published in the Following Journals

The Learning Organization, Economics and Management, Knowledge Management Research & Practice, Journal of Business Strategy, European Management Journal, Public Management, European Business Review, Advances in Strategic Management, Management International, La Revue des Sciences de Gestion

RAVI S. KUDESIA

Fox School of Business, Temple University
1801 Liacouras Walk, 344 Alter Hall 006-13, Philadelphia, PA 19122, USA; rskudesia (at) temple.edu

POSITIONS

Temple University, Fox School of Business
2018– Assistant Professor of Human Resource Management

ETH Zürich and Singapore Management University, Future Resilient Systems Project
2016–2018 Research Fellow; Decision Making in Risky, Dynamic, and Complex Environments

EDUCATION

Washington University in St. Louis, Olin Business School
2011–2017 PhD in Business Administration; Organizational Behavior Specialization

Boston University, School of Management and College of Communications
2004–2008 B.S. in Business Administration; Marketing Concentration; Advertising Minor

SELECT RESEARCH

van Veen, D. J.,[+] Kudesia, R. S., & Heinimann, H. R. (in press). An agent-based model of collective decision-making: How information sharing strategies scale with information overload. *IEEE Transactions on Computational Social Systems*. doi: 10.1109/TCSS.2020.2986161

Reina, C. S., & Kudesia, R. S. (in press). Wherever you go, there you become: How mindfulness arises in everyday situations. *Organizational Behavior and Human Decision Processes.* doi:10.1016/j.obhdp.2019.11.008

Kudesia, R. S.,[*] Lang, T.,[*+] & Reb, J. (2020). How institutions enhance mindfulness: Interactions between external regulators and front-line operators around safety rules. *Safety Science, 122*: 104511. doi:10.1016/j.ssci.2019.104511

Kudesia, R. S. (2019). Mindfulness as metacognitive practice. *Academy of Management Review*, *44*(2): 405–423. doi:10.5465/amr.2015.0333

Kudesia, R. S., & Reb, J. (2018). Mindfulness and the risk-resilience tradeoff in organizations. In B. D. Trump, M.-V. Florin, & I. Linkov (Eds.), *IRGC resource guide on resilience (Vol. 2): Domains of resilience for complex interconnected systems* (pp. 94–101). Lausanne, CH: EPFL International Risk Governance Center

Kudesia, R. S. (2017). Organizational sensemaking. In O. Braddick (Ed.), *Oxford Research Encyclopedia of Psychology* (pp. 1–47). Oxford, UK: Oxford University Press. doi:10.1093/acrefore/9780190236557.013.78

Valérie LAGRANGE

Expert in Safety Leadership and Human Factors – Electricité de France, International
Strategic adviser for the EDF's Direction of Nuclear Generation and Engineering:

- Politics and development of safety leadership and human factors
- Adviser to NPP's management and engineering units
- Strategic support for the deployment of HF approaches in major projects

Career

- **Since 2003, Adviser at the Strategic Pole of the National Engineering Unit:**
  - Support to the NPPs for the deployment of safety management practices, safety culture, etc.
  - Foresight vision on the HF domain and supervision of the approaches and methods of the domain
  - Co-piloting the deployment of the SOH (Socio-Organizational and Human impacts) approach in the Nuclear Operations Division and Engineering.
  - Responsible for the SOH approach of major projects, including NPPs decennial visits
  - Safety assessment of the NPPs in the context of the Annual Safety Analyses
  - Relationship with the National Safety Regulator on the domains
  - Representation of EDF abroad: SFEN, IAEA, WANO,... FORATOM

- **12 years to the Research and Development Center:**
  - 6 years manager of the HF group (15 researchers, PHDs)
  - 6 years researchers for major projects (EPR, …)

Publications, Courses

- 2 to 3 presentations per year, in congresses or workshops
- Book "Collective work in the nuclear industry", with B. Maggi – Octares
- Articles: Control magazine, Phoebus
- Organisation and implementation of international seminars on safety leadership: CNG, KEPCO, RosenErgatom
- Co-construction of the HF Master ICSI/ENSCP/Mines
- ENSAM Master's course (academic tutor, responsible for the HF module), ICSI Master's course
- Member of conference program committees: SELF, FORATOM

Formation

- PHD in Design Ergonomics - CNAM/Paris XIII
- Master in Ergonomics - Paris V
- Master in Occupational Psychology - Paris V

Didier LOUVAT-extended bibliographical sketch

Didier LOUVAT is the Managing Director of the European Nuclear Safety Training and Tutoring Institute, ENSTTI, an educational initiative grouping IRSN and other European Technical Safety Organizations. In this position, he also acts as project leader and expert for the European Commission and the IAEA in the field of capacity building in Nuclear Safety, Nuclear Security and Radiation Protection. Starting this initiative, he develops and enlarges the pool of international clients such as European Commission Directorates and UN agencies and also nuclear regulatory authorities and Technical Safety Organisations in Europe and elsewhere. ENSTTI has gradually engendered trust and recognition from its customers in delivering quality products, and in proposing well targeted training projects. ENSTTI delivers annually 6 000 hours of specialized training to 1 000 nuclear safety professionals worldwide.

From 2003 to 2010, he led the IAEA Programme on Radioactive Waste Management as Head of the Waste and Environmental Safety Section in the IAEA Department of Nuclear Safety and Security. As IAEA Programme Manager, he had to maintain adequate communication with Member States representatives at the Safety Standards committees and commission, and at international conferences and technical meetings. At the policy level, he worked with Member States in preparing the General Conference resolutions on nuclear and radiation safety, in preparing and implementing the first three review meetings of the Joint Convention, and in answering Member States questions and requests to the DG in the field of radioactive waste management and public and environmental radiation protection. At the technical level, he had to ensure that the development of the Safety Standards series on radioactive waste management was thoroughly discussed reviewed and agreed by Member States before the adoption of a new standard. He also had to initiate technical projects to either provide for the application of the Safety Standards or trigger the development of new standards (e.g. set up of an international project on remediation of former Uranium mines in Central Asia, federating the work of several UN organisations (IAEA, WHO, UNEP, UNDP, UNSCEAR), the OSCE, the EBRD, and the World Bank).

From 1999 to 2002, he headed the Radioecological Studies laboratory of IRSN. As Head of radioecology at IRSN, he had to manage scientific and technical controversies (Chernobyl fallout in France, exposure to black sands, level of radioactive releases from French nuclear installations) with French government representatives (ministries, Nuclear Safety Authority, regional authorities), civil society representatives and the media.

From 1992 to 1998, he holds several positions at the Department of Nuclear Fuel Cycle of the French Atomic Energy Commission, CEA, where he developed programmes related to disposal of radioactive waste and environmental impact assessment. In particular, as coordinator of the international OKLO-Natural Analog project, he had to organise the scientific and technical work of 70 researchers from 16 laboratories in France, Sweden, Spain, Denmark, Japan, the USA and Switzerland with a research site located in West equatorial Africa.

From 1987 to 1991, he worked as Technical Officer at the Department of Nuclear Applications of the International Atomic Energy Agency, developing and implementing programmes on the application of isotope techniques in solving environmental problems of IAEA Member States.

Didier LOUVAT graduated in Earth Sciences at Paris University where he completed a PhD in Isotope Geochemistry.

Vincent NYS

Federal Agency for Nuclear Control (Belgium)
WENRA

Vincent Nys is a senior member of FANC, the Federal Nuclear Safety Authority for Belgium. He is currently responsible for the management system and strategic plan development at FANC, and is in parallel Section Head for Nuclear Security.

Federal Agency for Nuclear Control (Belgium) working at FANC since 2007
Master's Degree (Advanced Degree) Engineer in Nuclear Physicist (ULB) 1979 - 1984
Mathematics bachelor (LLN) 1985 – 1986
History of Art and Archaeology: Bachelor (ULB) in 2019 and on-going Master 2014 -2019
AFCN/FANC - Safety senior expert, Project Management Officer & Strategic Plan officer since 2013
AFCN/FANC - Head of section - Safeguards and Physical protection 2012 – 2013
AFCN/FANC - Project Leader of Near Surface Disposal Facilities 2007 - 2011

- Elaboration and implementation of strategic regulatory plan

As senior expert, I actively contribute and supervise the elaboration and the follow-up of the 10 years FANC strategic plan, the 3-years and 1-year operational plan (methodology, approbation process, follow-up). This implies also the identification and the measurement of the KPI for the strategic, three years and annual FANC operational plans.

- Management System based on IAEA GSR Part 2 and old IAEA GSR-3

As management system coordinator of the "FANC Management System", I'm in charge of the development, the implementation and the follow-up of the FANC management system. FANC management System is structured around 15 policies covering all FANC legal missions.

- Radioactive Waste disposal facilities

Having a strong regulatory experience in the field of radioactive waste management and, safety analysis for disposal Facilities and in developing specific regulations in line with licensing process for disposal facilities. I also have some in-depth experiences in the reviewing of safety Case.

- Project manager Officer

I supervise all FANC strategical projects as Project Manager Officer. Regular feedbacks and KPI are discussed with the Board of Directors.

- Review and Assessment of Nuclear Power Plan

Since more than 10 years (Bel V), I worked as safety expert reviewing and assessing fuel core reload and safety analysis of nuclear power plan.

Contact: vincent.nys@fanc.fgov.be

Dr Colin Pilbeam, MA (Oxon), PhD, MBA, DBA

CAREER HISTORY:

2017 – Date	**Cranfield University (SATM) – Reader in Safety Leadership**
2000 - 2017	Cranfield University (SOM) – Principal Research Fellow / Director PhD Programme / Senior Research Fellow / Manager Research Programmes
1989 - 2000	University of Reading – Senior Research Fellow / Research Fellow
1986 - 1989	University of Nottingham - Research Fellow

EDUCATION AND QUALIFICATIONS:

2008	**DBA** in Higher Education Management, University of Bath. Title of thesis: "Networks and roles of Pro-Vice Chancellors: A study of the connectedness of PVCs in the 1994 Group of Universities". **Mawditt Prize for best DBA thesis**
2000	**MBA** University of Reading.
1988	**MA**, University of Oxford.
1986	**PhD** in Agricultural Botany, University of Reading. Title of thesis: "Comparative studies of populations of Perennial Ryegrass differing in their rate of respiration".
1983	**BA (Hons) 2nd Class** Agriculture and Forest Sciences. Christ Church, University of Oxford.

SELECTED SAFETY RESEARCH FUNDING AWARDS:

2017	Dysfunctional processes and fractured relationships: managing health and safety following organizational change through outsourcing. Principal Investigator Institution of Occupational Safety and Health (IOSH), value £171,516.
2013	Networks of Influence: practicing safety leadership in low hazard environments. Institution of Occupational Safety and Health (IOSH), value £244,078. Principal Investigator

SELECTED SAFETY PUBLICATIONS:

Pilbeam, CJ. and Denyer, D. Managing safety in outsourcing relationships. *Safety Science* (Submitted)

2019 Pilbeam, C.J., Denyer, D., Doherty, N, and Davidson, R. Designing safer working interventions through a literature review using a mechanisms-based approach. *Safety Science* 120: 352-361.

2017 Colin Pilbeam, Noeleen Doherty and David Denyer. Safety Leadesrhip: Fashion, Function, Future. In: *Health and Safety in a Changing World*. pp. 115-137. Routledge. Eds. R. Dingwall and S. Frost.

2016 Pilbeam, C, Doherty, N, Davidson, R. and Denyer, D. Effect of isomorphic forces on safety practices in service organizations: are there dangers to homogeneity? *Policy and Practice in Health and Safety* 14(1): 50-64.

2016 Pilbeam, C., Doherty, N., Davidson, R. and Denyer, D. Safety leadership practices for organizational safety compliance: Developing a research agenda from a review of the literature. *Safety Science* 86: 110-121.

2016 Pilbeam, C., Davidson, R., Doherty, N. and Denyer, D. What learning happens? Using audio diaries to capture learning in response to safety-related events within retail and logistics organizations. *Safety Science* 81: 59-67.

2015 David Denyer and Colin Pilbeam. *Managing Change in Extreme Contexts*. (eds.). Routledge: Oxford. ISBN: 9780415532808.

EXTERNAL ACADEMIC CITIZENSHIP

2020	Invited to join Editorial Board Journal of Safety Research
2017	Elected co-Vice Chair Special Interest Groups, British Academy of Management.
2015	Discipline Vice Chair Panel I – Research Quality Review, University College Cork, Ireland.
2014	Elected to Council of British Academy of Management.
2014	Appointed to the Commissioning Panel for the ESRC Advanced Training Initiative.

CURRICULUM VITAE

Dr Kristina Potočnik, University of Edinburgh Business School

EDUCATION

2004-2009 PhD in Work and Organizational Psychology, University of Valencia, Spain.
1999-2004 MA in psychology. University of Ljubljana, Slovenia

CURRENT POSITION

Senior Lecturer/ Associate Professor in Human Resource Management and Head of Organisation Studies Group, University of Edinburgh Business School

RELEVANT PUBLICATIONS

Look, M., Potočnik, K., & Chaudhry, S. (in press). Revisiting the Link between CEO Transformational Leadership and Firm Performance: A Secondary Data Analysis. *European Management Journal.* https://doi.org/10.1016/j.emj.2020.05.004

Oliver, N., Calvard, T., & Potočnik, K. (2019). Safe limits, mindful organizing and loss of control in commercial aviation. *Safety Science, 120*, 772-780.

Oliver, N., Calvard, T., & Potočnik, K. (2017). Cognition, technology, and organizational limits: Lessons from the Air France 447 disaster. *Organization Science, 28*, 729-743.

Oliver, N., & Potočnik, K., & Calvard, T. (2018). To make self-driving cars safe, we also need better roads and infrastructure. *HBR.ORG* (Online publication).

Oliver, N., Calvard, T., & Potočnik, K. (2017). The tragic crash of flight AF447 shows the unlikely but catastrophic consequences of automation. *HBR.ORG* (Online publication).

Oliver, N., Calvard, T., & Potočnik, K. (2017). The limits of almost totally safe systems: Cockpit automation and the loss of Air France 447. *Work in Progress* (Online publication).

RELEVANT CONFERENCE PRESENTATIONS

Potočnik, K., Oliver, N., Senturk, M., Calvard, T., & Tomasella, T. (2018, July). Not all That Glitters is Gold: Exploring the Effects of Stress-Driven Innovation in Uncertain Environments. Paper presented at the Uncertainty conference, Ascona, Switzerland.

Potočnik, K., Oliver, N., Senturk, M., Calvard, T., & Tomasella, T. (2020, August). Necessity is the Mother of Innovation: A Quasi-Experimental Study of Stress-Driven Innovation. Paper presented at the AOM annual meeting, Vancouver, Canada.

Senturk, M., Oliver, N., Potočnik, K., Calvard, T., & Tomasella, T. (2019, May). Beyond reliability: Collective mindfulness and team performance. In F. Gracia (Chair), *Mindful organizing and reliable and safe performance in high hazard industries*. Invited symposium conducted at the 19th European Congress of Work and Organizational Psychology, Turin, Italy.

Oliver, N., Senturk, M., Potočnik, K., Calvard, T., & Tomasella, T. (2019, August). Contextual ambidexterity, paradox, and team performance under uncertainty. In J. L. Sparr & G. Grote (Chairs), *Paradox and Uncertainty.* Invited symposium at the AOM annual meeting, Boston, USA.

Oliver, N., Calvard, T., & Potočnik, K. (2016, August). Sensemaking and control at the limit: The Air France 447 disaster. Paper presented at the AOM annual meeting, Anaheim, USA.

Oliver, N., Senturk, M., Calvard, T., Potočnik, K., & Tomasella, T. (2018, June). Ambidextrous Production Teams: The Productivity Dilemma Revisited. Paper presented at the Annual EurOMA Conference, Budapest, Hungary.

Oliver, N., Calvard, T., & Potočnik, K. (2018, July). Safe Limits and Loss of Control in Commercial Aviation. Paper presented at the Uncertainty conference, Ascona, Switzerland.

Jacques Repussard

7 Allée de la Forêt de Marly, 78860 St Nom la Bretèche, France

jrepussard@aol.com

A short CV

Born 1950, Pau, France (French National)

Married to Pamela Minor (UK national)

Education :

- Diplomed engineer from Ecole Polytechnique, Paris (1971)
- Diplomed engineer from Ecole Nationale des Ponts et Chaussées, Paris (1973)
- Ingénieur en Chef des Mines (1991)

Career :

- Civil service in the Ministry of Industry (1973/1985)
- French Standards Agency (AFNOR) : Deputy Director General (1985/1991). Mission : to set up and develop the Agency's activity in the field of quality assurance certification, and to reform its mode of funding from public subsidy to industry contributions
- European Standards Organisation (CEN, Brussels) : Chief executive (1991/1997). Mission : to develop the thousands of new European harmonised standards which were needed to operate a technical barrier free European Internal Market and implement the European legislation requirements on product safety, public health and environmental protection.
- National Institute for Environmental Safety (INERIS, France) : Deputy Director General (1997/2003). Mission : to develop this newly created National Institute, originally the research branch of the French Coal Board, as a TSO for the French Ministry of Environment (Research and Expertise on environmental and public health risks from industry & mines, chemical pollutions ,…)
- Nuclear Safety and Radiation Protection Institute (IRSN, France) : Director General, 2003/2016). Mission : To transform the two pre-existing institutes for nuclear safety of the French Atomic Energy Commission (CEA/IPSN), and for radiation protection (Health Ministry/OPRI) into a national research and expertise institution, in order to provide technical and scientific support for the competent governmental authorities in the following fields : Nuclear Safety Authority (ASN), Nuclear Security Authority (Ministry of Energy), Civil Security Authority (Ministry of Interior), Defence Ministry Nuclear Safety Authority, National Authority for the prohibition of chemical weapons (Ministry of Industry)
- Independant consultant (2017/…) : Mission : to provide managerial expertise on issues related to nuclear and radiation safety to public interest organisations such as the European Commission, EURATOM research projects, IAEA, NEA,…

Some International achievements

- Head of the French delegation to the GATT (predecessor of WTO) (1981/1985)
- Development of the first European network for environmental monitoring (1999)

- Development of ETSON and ENSTTI for European networking on issues of nucler safety, including training of professional experts (2008, 2010)
- Development of MELODI (european association for research on low dose radiation effects), acting as a platform in support to EURATOM research (2009), and chair of MELODI (2009/2015)
- First Chair of the IAEA TSO Forum
- Lead expert for the development and first experimentation of IAEA's initiative for training member states middle carrer managers in the field of leadersip for safety, for the implementation of IAEA's safety requirements in this field.

CATHERINE THOMAS

CURRENT POSITION

Professor in Management – Université Côte d'Azur, CNRS, GREDEG (UMR 7321) – since 2008

Project Leader for European Leadership for Safety Education (ELSE - project funded by the European Community) – since 2019

Catherine.Thomas@gredeg.cnrs.fr

EDUCATION

2003 Habilitation for supervising doctoral research - University of Nice Sophia Antipolis - France

1997 PhD - « Hierarchy evolution within organizations » - University of Nice Sophia Antipolis - France

RESEARCH AREAS

Organizational dynamics, Knowledge Management, Innovation Project Management, Safety Management and Research Methods

Selection of Publications (2015- 2020):

- Polova O., Thomas C. (2020) How to perform collaborative servitization innovation projects: the role of Servitization Maturity, *Industrial Marketing Management*, forthcoming
- Klessova S., Thomas C., Engell S. (2020) Structuring inter-organizational R&D projects: Towards a better understanding of the project architecture as an interplay between activity coordination and knowledge integration, *International Journal of Project Management*, Vol. 38, Issue 5, July, pp. 291-306.
- Versailles D.W., Boisot M., Merindol V., Rouby E., Thomas C. (2020) Simple rules, heuristics and the attentional frontier reliability versus performance in French fighter pilot squadrons, *EGOS 2020 annual conference*, July 2-4, Hamburg, Germany, on-line.
- Jubault Krasnopevtseva N., Thomas C., Kaminska R. (2020) Leadership for Resilient Organizing: a Critical Realist Approach to Revisit the Role of Leadership in High-Risk Organizations, *XXIXe AIMS Conference*, June 2-5, Toulouse, France, on-line.
- Thomas C., Kaminska R. & Andriani P. (2020). Bill McKelvey - Les sciences de la complexité : un méta-paradigme pour intégrer les différentes perspectives de l'organisation. In T. Loillier et A. Tellier (eds.), *Les grands auteurs en Stratégie*. EMS pp. 531-548.
- Jubault Krasnopevtseva N., Thomas C., Kaminska R. (2019) The dynamics of safety risk perception in high reliability organizations, *British Academy of Management 2019 Annual Conference*, September 3-5, University, Birmingham, UK
- Jubault Krasnopevtseva N., Thomas C., Kaminska R. (2018) Safety leadership in high risk and highly regulated sectors: A theoretical framework, *EGOS 2018 annual conference*, July 5–7, Tallinn, Estonia.
- Echajari L., C. Thomas, Jorel M., et Ermine JL, 2017, Developing knowledge codification to learn from rare and complex experiences: the case of Fukushima nuclear accident, *Organization Science Winter Conference (OSWC)*, Park City, US.
- Echajari L., Thomas C., 2015, "Learning from complex and heterogeneous experiences: The role of knowledge codification", *Journal of Knowledge Management*, Vol. 19 Iss: 5, pp. 968-986.
- Avenier M.J., Thomas C., 2015, « Finding one's way around various methodological guidelines for doing rigorous case studies: A comparison of four epistemological frameworks », *Systèmes d'information & management*, Vol. 20, pp. 61-98.