ETSON | EUROPEAN TECHNICAL SAFETY ORGANISATIONS NETWORK

Enhancing the science basis of nuclear safety and radiation protection: a collective challenge

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Director general of IRSN
President of ETSON

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ETSON objectives and priorities

ETSON is a formal association of national TSO's, governed by French law, which aims :

- To be a forum for exchanges on safety analyses and R&D in the field of nuclear safety,
- To foster the convergence of technical nuclear safety practices in Europe, including elaboration of safety assessment technical guides,
- To further the definition and the implementation of nuclear safety research programmes,
- To offer expert services in all the fields of nuclear safety, radiation protection, waste management.

ETSON has a formal liaison status with IAEA

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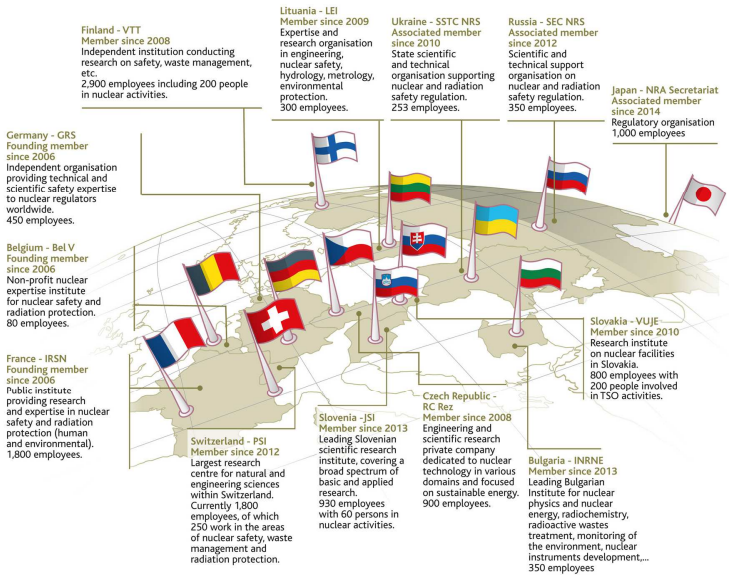
Who are ETSON members ?



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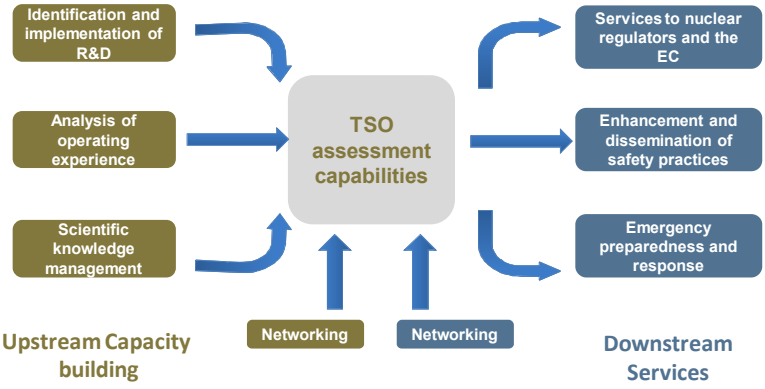
How ETSON operates

Safety is science-based



Expertise capability at the highest level requires permanent networking and carefully coordinated management and resources

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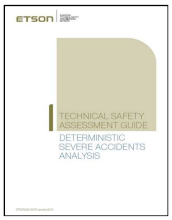
ETSON deliverables: www.etson.eu

. **Thematic Seminars, conferences**

EUROSAFE
Towards Convergence of Technical Nuclear Safety Practices in Europe

- **Research priorities and contribution of European Strategic Research Agendas**

- **Safety assessment guides (14 WG's, coordinated by a Technical Board)**



- **Coordination platform for the implementation of complex multinational projects**

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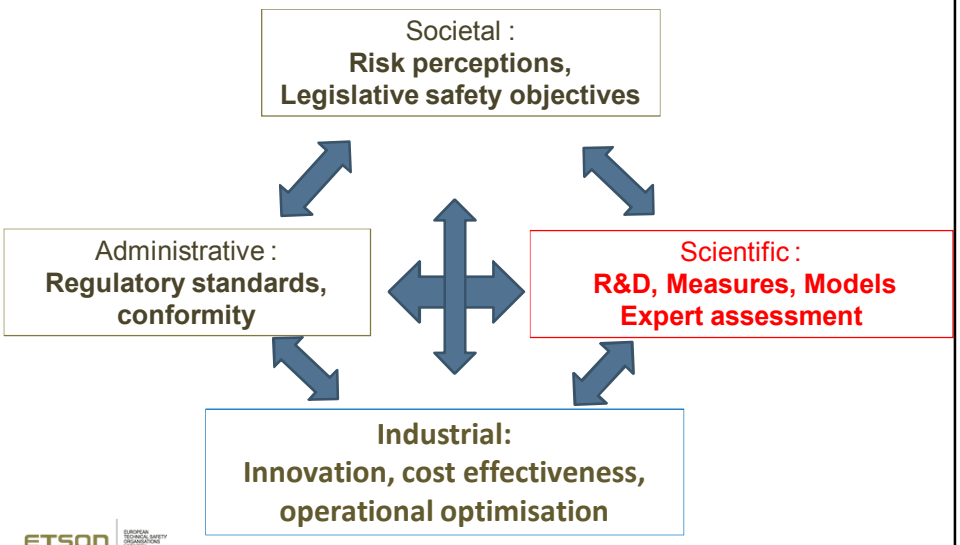
The multiple dimensions of nuclear safety



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Post 2014 EU Nuclear Safety objectives


L 219/42 EN Official Journal of the European Union 25.7.2014

COUNCIL DIRECTIVE 2014/87/EURATOM
of 8 July 2014
amending Directive 2009/71/Euratom establishing a Community framework for the nuclear safety of nuclear installations

- Art 8a: « Member States shall insure that the national nuclear safety framework requires that nuclear insatllations are designed,…. ,with the objective of ... preventing accidents, and **should an accident occur, mitigating its consequences and avoiding:**

a) **Early radioactive releases that would require off-site emergency measures, but without sufficient time to implement them**

b) **large radioactive relases that would require protective measures that could not be limlites in area or time. »**

- Art 7 requires Member States to ensure the availability of adequate expertise and skills for nuclear safety and on-site emergency preparedness

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How to implement effectively such requirements??

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Improving nuclear safety science basis : a moving target

	Knowledge base	Infrastructure: experimental, databases; codes; emergency	Experts
Existing	Knowledge management	▪ Catalogue ▪ Benchmark, user clubs ▪ Accessibility	Networking; training; mobility
Identified gaps	*	*	Safety expertise for: ▪ New build NPP programmes ▪ Beyond design safety issues ▪ Emergency preparedness
Development programmes	▪ - SRA's and R&D budgets ▪ - Multinational projects (EURATOM, NEA) ▪ - Industry/TSO cooperation		Education ; regulatory requirements; funding systems TSO development

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EUROPEAN NUCLEAR SAFETY TRAINING & TUTORING INSTITUTE

Experts for experts

Strengthening expertise in Nuclear Safety to support regulatory systems

In 2014, 25 training courses and 37 months of tutoring for 401 participants from 31 countries with 252 lecturers and tutors from EU NRAs and TSOs

www.enstti.eu

enstti
EUROPEAN NUCLEAR SAFETY TRAINING & TUTORING INSTITUTE

Experts for experts

- Transferring know-how in assessment in nuclear safety, nuclear security and radiation protection
  - Through practical training and tutoring
  - Supporting harmonization of EU methodologies and practices
- Developing and strengthening EU safety expert network capability
  - Calls on European TSOs' expertise to maximize the transmission of knowledge, practical experience and culture.
  - A curriculum structured in learning pathways for analysts, inspectors, researchers.

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Experts for experts

Long term goals of the ENSTTI initiative include:

- **Mutualisation of expert training and knowledge management costs,**
- **Facilitation of professional mobility of safety analysts through harmonisation of training curriculum,**
- **International dissemination of European nuclear safety know how, in support to the EU INSC instrument.**

Improving nuclear safety science basis : a moving target

	Knowledge base	Infrastructure: experimental, databases; codes; emergency	Experts
Existing	Knowledge management	▪ Catalogue ▪ Benchmark, user clubs ▪ Accessibility	Networking; training; mobility
Identified gaps	*	*	Safety expertise for: ▪ New build NPP programmes ▪ Beyond design safety issues ▪ Emergency preparedness
Development programmes	▪ - SRA's and R&D budgets ▪ - Multinational projects (EURATOM, NEA) ▪ - Industry/TSO cooperation		Education ; regulatory requirements; funding systems TSO development

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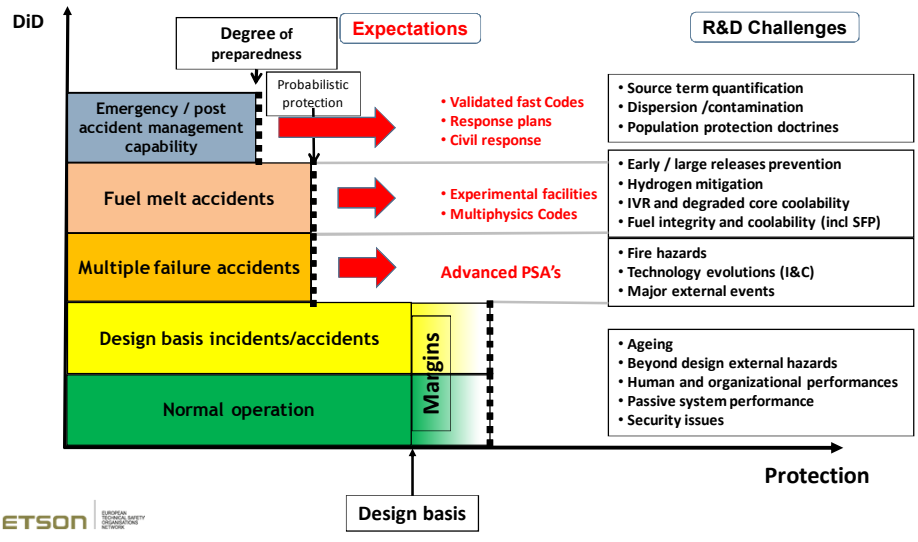
Knowledge and know how gaps in the light of current nuclear safety societal expectations



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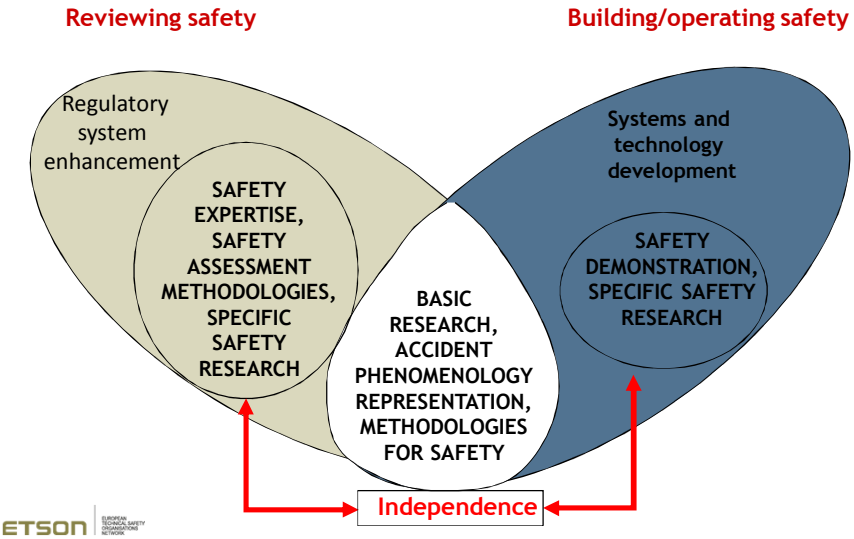
TSO's and Industry can benefit from some joint R&D activities without compromising independance



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Fission related European Research platforms

Reactor designs: **SNETP/ ESNII**

Systems and components: **SNETP/NUGENIA, IGDTP/SITEX**

Severe accident mitigation: **NUGENIA /SARNET**

Off site radiological emergency preparedness: **NERIS**

Low dose effects: **MELODI**

Environmental issues: **Radioecology Alliance**

Dosimetry: **EURADOS**

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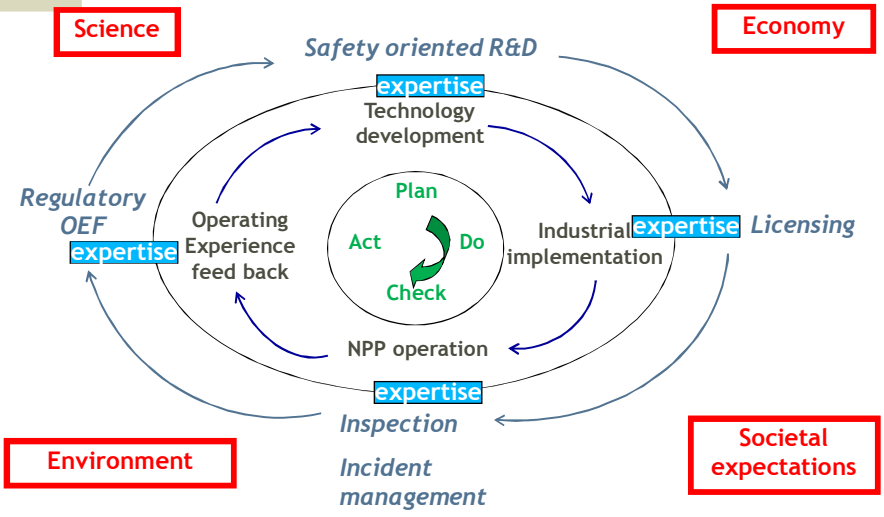
A global vision to ensure continuous worldwide safety enhancement



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Three conclusive points

1. An accident somewhere is an accident everywhere: international, regional and national actions must converge to foster R&D aiming to enhance reactor safety designs, prevent the reoccurence of a major accident and to improve emergency preparedness.

2. Major new build programs in the coming 15 years will stretch beyond capacity the existing nuclear safety expert force worldwide. However, today's nuclear safety research is tomorrow's excellence in expertise.

3. IAEA could seek to maximize its TSO Fora potential, acting closely with NEA, to promote and enhance nuclear safety's scientific basis.

4 main goals for a « Science and safety » IAEA action plan ?

1. Promote science as a fundamental asset and condition for nuclear safety worldwide
2. Contribute to the identification of scientific capacity gaps (knowledge, research, experts, infrastructures, education and training)
3. Encourage networking, scientific cooperation between its member states
4. Extend its peer review services to scientific capabilities supporting nuclear safety systems in its member states.

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Thank you for your attention

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