# From Nuclear Safety Culture to Railway Safety Culture
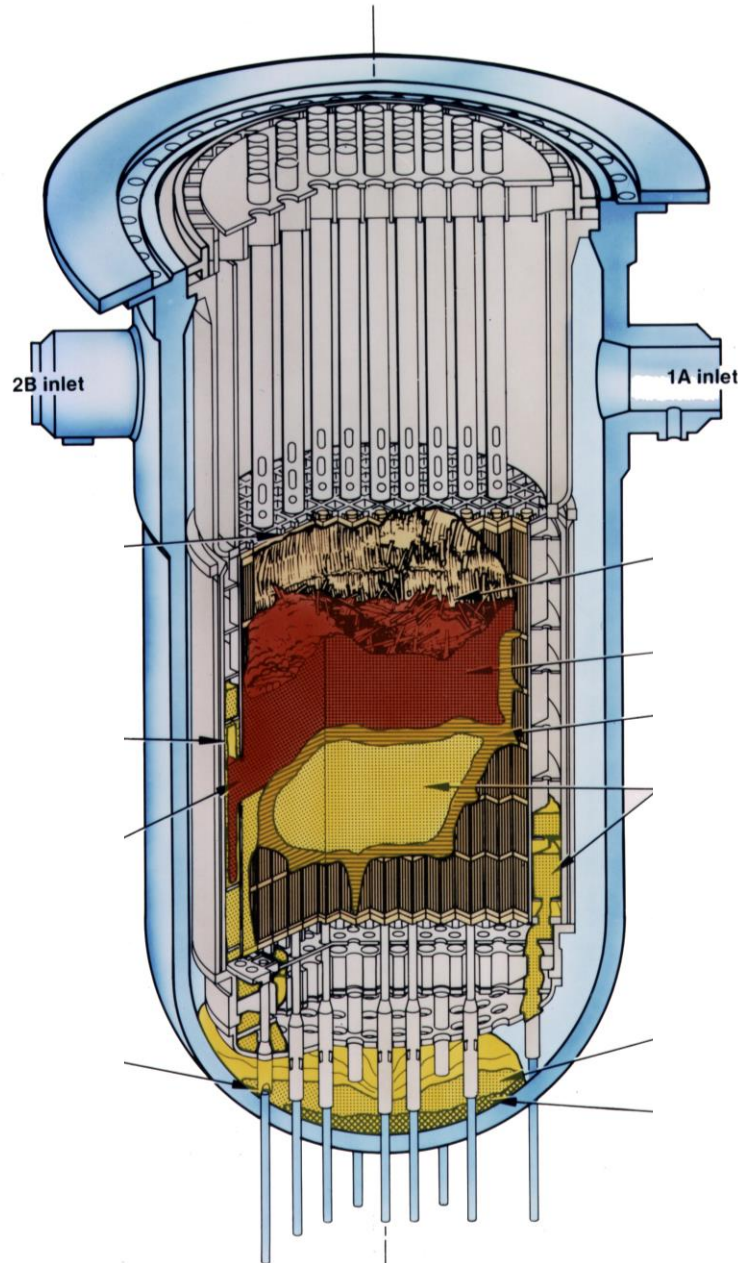
Some Lessons Learned From Thirty Years of Theoretical and Practical Developments

**Dr. Grégory ROLINA**

27th IRSC, Hong Kong, 24 October 2017

EUROPEAN UNION AGENCY FOR RAILWAYS

International Railway Safety Council 2017

October. HONG KONG

2B inlet

1A inlet

*The emergence of **Human Factors** in the nuclear industry*

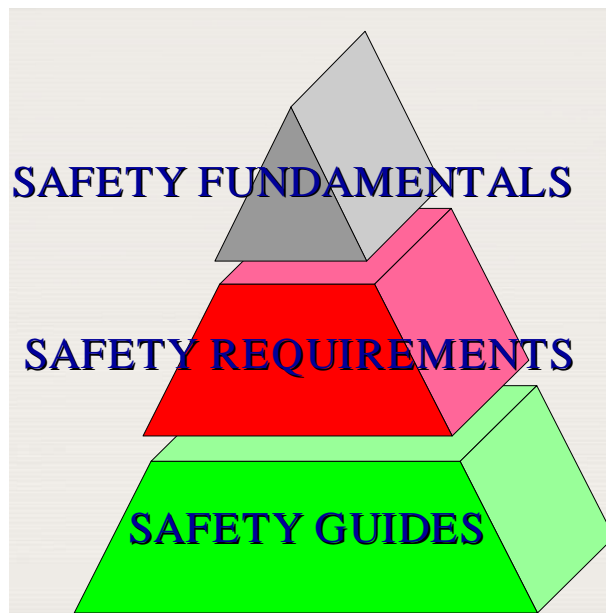*"The age of **Organisational Accident**" (J. Reason)*



*The introduction of the Safety Culture concept*
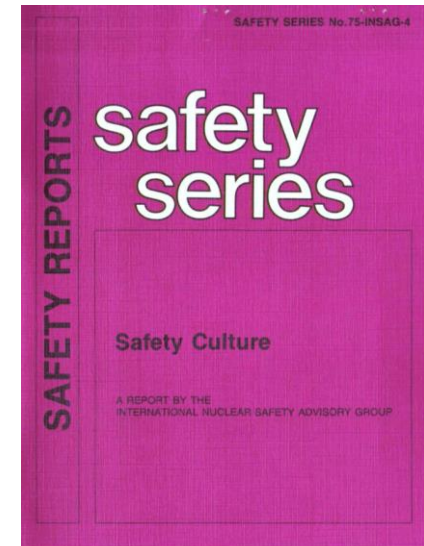
# International Atomic Energy Agency (IAEA)
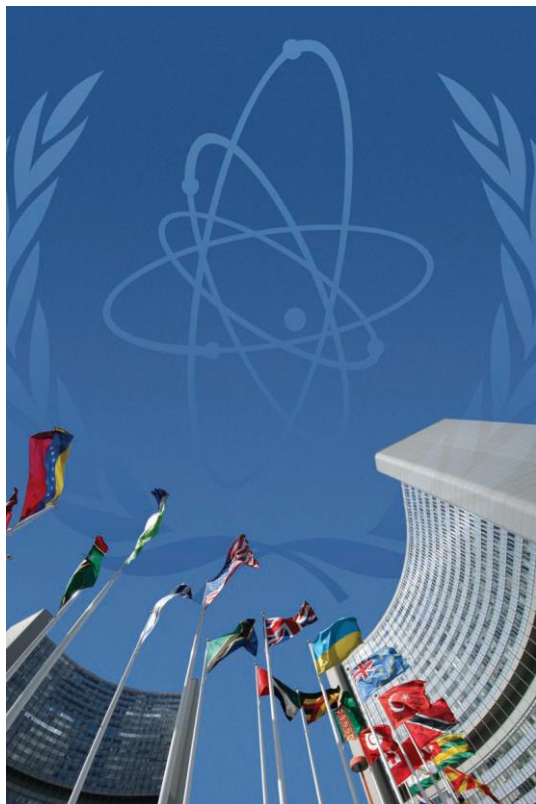
- Founded in 1957
- 168 Member States
- "Atoms for Peace"
- "To establish standards of safety"
- INSAG: International Nuclear Safety Group



SAFETY FUNDAMENTALS

SAFETY REQUIREMENTS

SAFETY GUIDES

*"Safety culture is that assembly of **characteristics** and **attitudes** in **organisations** and **individuals** which established that, as an overriding priority, nuclear plant safety issues receive the attention warranted by their significance."*

- Informal / formal aspects
- Normative definition
- IAEA Definition ever since

SAFETY SERIES No.75-INSAG-4

SAFETY REPORTS

safety series

Safety Culture

A REPORT BY THE
INTERNATIONAL NUCLEAR SAFETY ADVISORY GROUP

INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA, 1991

*"Organisations having a strong safety culture will have an effective safety management system with the support and ownership of all staff. (...)*
*The safety management system, in turn, provides a means by which the organisation promotes and supports a strong safety culture."*

**INSAG-13 (1999)**

**Safety Fundamentals (2006)**
*"**Leadership** in safety matters has to be demonstrated at the highest level in an organisation;*
*The management system also has to ensure **the promotion of a safety culture**;*
*A safety culture that governs the attitudes and behaviour in relation to safety of all organisations and individuals concerned **must be integrated in the management system.***

**Safety Requirements**
*"Individuals in the organization, from senior managers downwards, shall foster a strong safety culture. **The management system and leadership for safety shall be such as to foster and sustain a strong safety culture**."*

*"Safety culture is complex and no obviously satisfactory measures exist"*

**IAEA TECDOC 1322 (2002)**

# Organisational Culture – Schein's Multilevel Model



**Artefacts**

**Values**

**Basic assumptions**
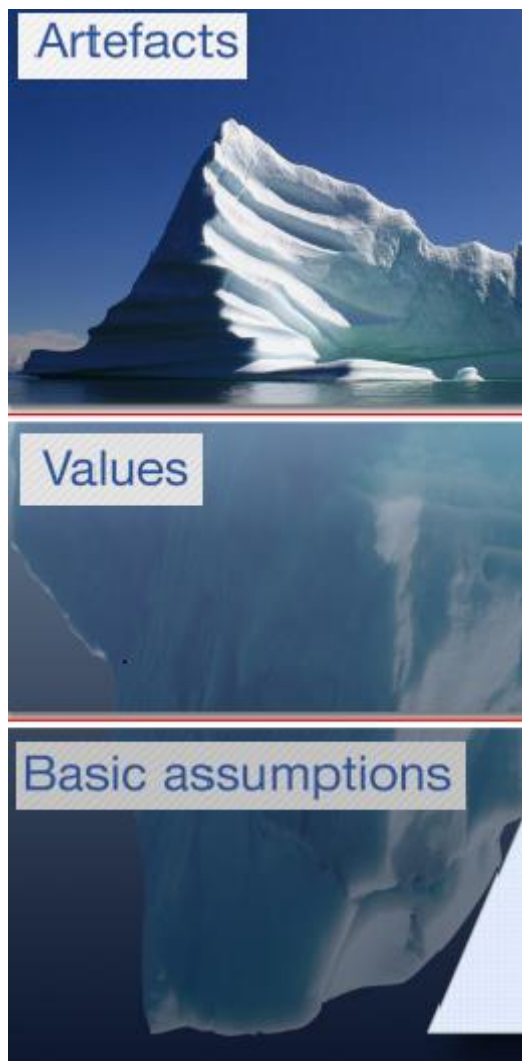
*What you see, hear and feel
When entering an organisation, the design
and architecture of the building*

*Espoused values such as
"Safety first", "Equality of opportunity"*

*The nature of time and space; the nature of
truth; the relative importance of work, family
and self-development…*

- 2/3-week assessment process with preparatory stage
- **Multi-disciplinary** review team of 5-10 experts
- Data collection using **social sciences** methods
- Assessment scope is the whole organisation and its interfaces
- Top management is committed
- Assessment is part of a continual improvement strategy – and is seen as a ***major learning opportunity***
- Results are disseminated throughout the organisation
- Results are acted upon to improve leadership for safety and to promote a learning attitude within the organisation

*Safety culture refers to the interaction between the requirements of the **safety management system**, how people **make sense** of them, based on their attitudes, values and beliefs and what they actually do, as seen in **decisions and behaviours**.*

*A positive safety culture is characterised by a collective commitment by leaders and individuals to always act safely, in particular when confronted with competing goals.*
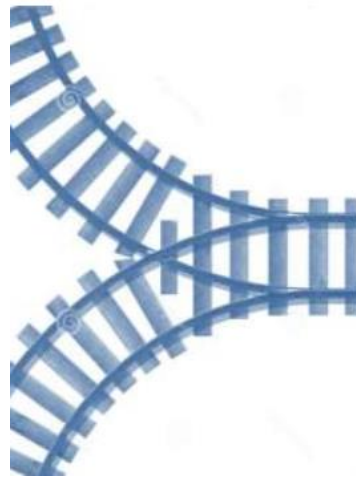
IAEA-TECDOC-1707

**Regulatory Oversight of
Safety Culture in
Nuclear Installations**

IAEA
International Atomic Energy Agency

*"Regulators should look at attitudes, values, assumptions, perceptions and behaviours in addition to systems and processes because they influence the way in which formal systems are implemented"*

- Human and Organisational Factors are considered are major contributors to safety

- Sharing and Learning: Importance of Operating Experience Feedback / Common Occurrence Reporting

- Safety culture is part of organisational culture

- There is a strong relationship between organisational culture, the safety management system and the leadership

- There is no simple indicator to measure safety culture

- Safety culture assessment is based on a detailed description of the organisational culture assessed against a framework of a (positive) safety culture

- Regulatory bodies have a role *vis-à-vis* safety culture and should develop a specific process for collecting, analysing and reporting safety culture data

Making the railway system work better for society.

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