

# Knowledge Management for Regulators and TSOs (Publication Proposal)

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**IAEA**

International Atomic Energy Agency

# Key Information

- Full (working) title
  - Knowledge management for regulatory bodies of nuclear installations (activities?)
- Level
  - Safety Report Series (SRS)
- Objective
  - To produce a safety report that gives practical advice on introducing and running knowledge management programmes for regulatory bodies and (activities?)

# Key Information

- Scope
  - The report will **complement the existing** SRS Nr. 79 “Managing Regulatory Body Competence”
  - The report will build on
    - **insights** from the recent International Conference on Human Resource Development for Nuclear Power Programmes (May 2014)
    - **lessons learned** from relevant IAEA nuclear safety services
    - **experience gained** in Member States.
  - It will include, as annexes, **reference examples** of corporate knowledge management programmes by regulators in selected Member States

# Key Information

- Focus
  - Practical guidance
- Milestones and Timeline
  - Q3/2014: **Proposal and Outline ready**
  - Q4/2014: "Green light" (SC and NS-internal)
    - Seek input and good models from Member States
  - Q2/2015: Draft #1 ready
    - Seek comments by Member States
  - Q4/2015: Draft #2
    - All comments incorporated
  - Q4/2015: Final TM/SC to seek endorsement by Member States
  - **Q1/2016: Publication**

# Rationale

- Knowledge Management has been identified as one of **the key factors that can contribute to the safe, secure and efficient operation** of nuclear activities and facilities in Member States
  - General Conference resolutions
  - Safety Standards (several levels)
  - IAEA conferences (e.g. on capacity building, May 2014)
  - Nuclear Safety Action Plan (elements)

# Rationale

- Special Considerations for Regulators
  - a regulator must have safety knowledge from **very different perspectives**
    - legal, regulatory and organizational basis; technical disciplines; regulatory practices and personal and behavioural competences; other?
  - safety knowledge is necessary to achieve the necessary regulatory **independence** ("critical knowledge")
  - a regulator is **legally obliged** to maintain a knowledge base to fulfil his mandate
  - a regulator must be able to manage knowledge **over long timescales** (safety cases; basis for decisions), including decommissioning

# Rationale

- Special Considerations (continued)
  - a regulator has **knowledge “interfaces” with many other organizations** and must be able to integrate knowledge from various sources (e.g. designer, operator, waste management agencies);
  - regulators, **as non-commercial entities**, should make structured and deliberate efforts to manage their own resources effectively, including corporate knowledge as key asset;
  - **a dual role in “knowledge management”**: as regulator, provide regulatory oversight over knowledge management by operators, as organization, manage own knowledge.
- These considerations make **tailored** and practical IAEA guidance on knowledge management for regulators timely and desirable.

# Objective

- The objective of the publication is to provide guidance to Member States on how to plan, establish and maintain an effective knowledge management programme in regulatory bodies (activities?)
- The focus of the publication would be on
  - practical applicability of the guidance provided,
  - achieved by short and concise descriptions of all relevant knowledge processes and
  - examples of relevant programmes in Member States.
- A special chapter will provide guidance for embarking countries, in particular
  - for capacity building towards establishing a new regulatory body
  - by using knowledge management methods and approaches.



# Interfaces and Coordination

- **GC resolutions**
  - Identify how the publication responds to GC/RES operative paragraphs
- **Nuclear Safety Standards,**
  - Considering also current revisions
  - Including, inter alia,
    - SF-1 "Fundamental Safety Principles" (2006)
      - E.g. 3.10 on "competence" and "human ... resources"
    - GS-R Part 1 "Governmental, Legal and Regulatory Framework for Safety" (2010)
    - GS-R-3 "The Management System for Facilities and Activities Safety Requirements" (2006)
      - and related GS-G guidance reports
    - GS-G-1.1 "Organization and Staffing of the Regulatory Body for Nuclear Facilities" (2002)
- **Strategic Approach to Education and Training in Nuclear Safety for 2013–2020**
  - It includes *National Strategies and Mechanisms*

# Interfaces and Coordination

- Existing **Nuclear Safety Series** Reports
  - SRS Nr. 79 “**Managing Regulatory Body Competence**” (2013)
    - "Competence" here: mainly human resources
    - Knowledge is more: e.g. "people, process, technology"
- Existing **Nuclear Energy Series** Reports
  - Knowledge Management for Nuclear Industry Operating Organizations (2006)
  - Knowledge Management for Nuclear R&D Organizations (2012)
- IAEA **Conference** on Capacity Building (2014)
  - Conference Report
  - IEM Series Report (under preparation) on capacity building for nuclear safety
- IAEA-internal **coordination** through established mechanisms

# The KM Cycle

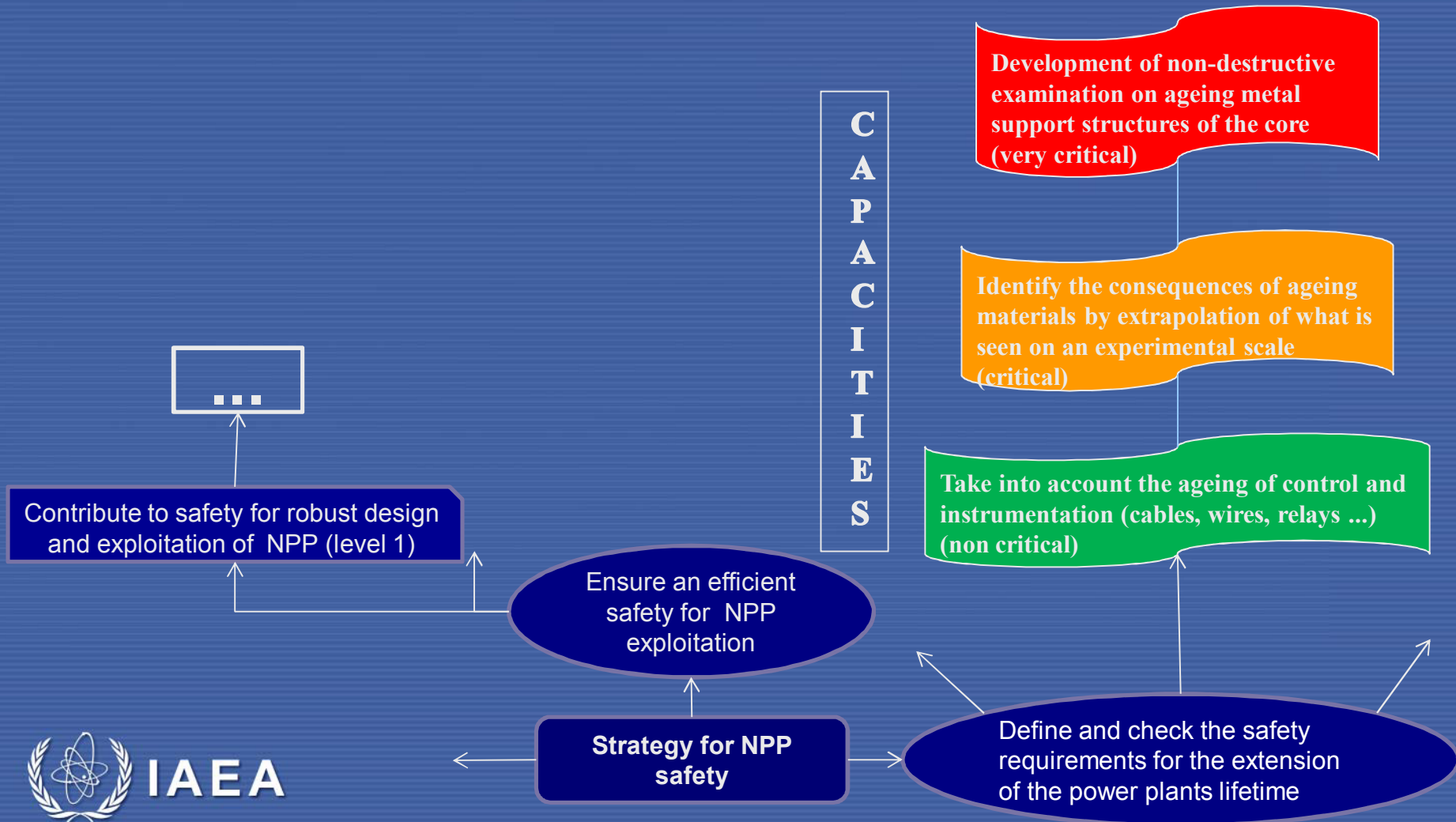


# Introduction of a KM Framework

- Missions of the KM
- Responsibilities
- Resources
- Links to HR plans, ICT plans, organizational units, business processes, documentation and archives...
- Links to corporate development plan and to national nuclear energy program context

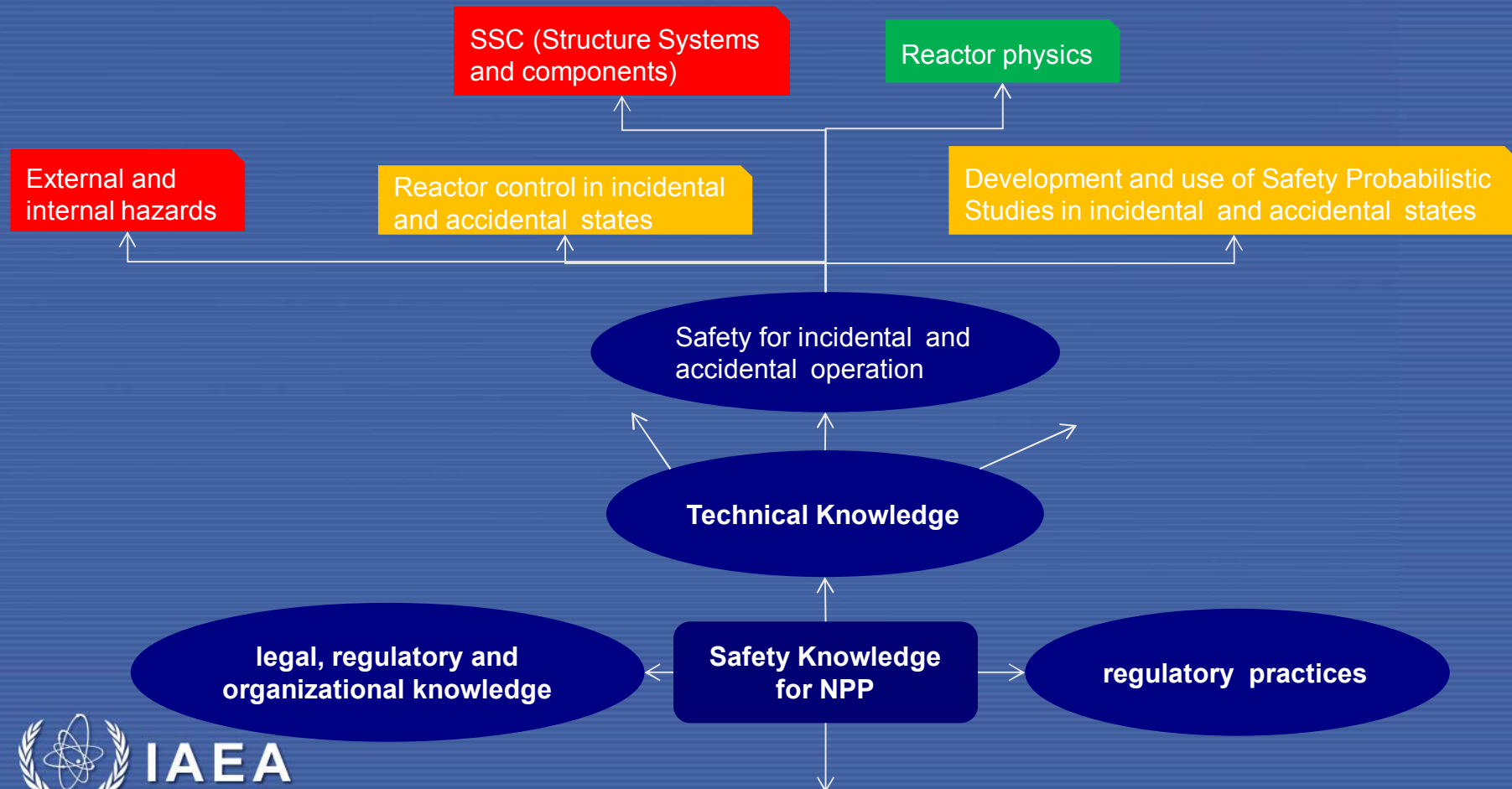
# 1 Building a KM action plan aligned with the strategy (1)

- What is the strategy ? What are the required capacities ?



# 1 Building a KM action plan aligned with the strategy (2)

- What is the available knowledge ?



# 1 Building a KM action plan aligned with the strategy (3)

## BUILDING A KM ACTION PLAN

- **Identification of the gaps between required capacities and existing knowledge**
- **Define the KM actions to fill the gaps**
- **Examples of KM actions**
  - HR actions: recruiting, training, mentoring, expert management, specific professional tracks...
  - Knowledge processes : building communities of practice, defining good practices, capitalising lessons learned, tacit knowledge elicitation from experts ...
  - IT actions : documentation management, archives, search engines
  - Management perspectives : Develop a sharing culture

2

## Organizing Knowledge Resources : the Corporate Knowledge Repository

- **INVENTORYING EXISTING KNOWLEDGE RESOURCES**
  - Information bases, Document bases, Networks of knowledgeable people, External knowledge
- **STRUCTURING THE KNOWLEDGE RESOURCES IN A CORPORATE KNOWLEDGE REPOSITORY**
  - Knowledge portal or server
- **ADDING NEW KNOWLEDGE RESOURCES**
  - Yellow pages, Web resources, Access to knowledge communities, Knowledge based documents (basic principles, bibles, lessons learned, ...), Knowledge books (tacit expertise elicitation), Training resources, Technical and scientific documentation ...



- **POPULATING THE KNOWLEDGE REPOSITORY**
  - Capitalisation of operational Knowledge  
(Business Knowledge Base)
    - Capitalise Lessons learned, Define Good Practices, Elaborate Guides, Standards ...
  - Capitalisation of fundamental Knowledge  
(Scientific and Technical Knowledge Base)
    - Elaborate Knowledge books (Elicit tacit scientific or technical expertise), Organise research productions (scientific publications, thesis, reports, studies, grey literature...), Design training material on crucial scientific and technical topics...

- **SHARING THE KNOWLEDGE REPOSITORY**
  - Implementing sharing processes :  
Mentoring processes, Communities of practice, In house seminars, On job training ...
- **KNOWLEDGE ACQUISITION PROCESSES**
  - Training, Recruiting, e-learning, Learning systems, Knowledge Outsourcing, Corporate University, ...

- **KNOWLEDGE RETRIEVAL**
  - Information retrieval from external sources
  - Scientific and technological watch
- **CREATIVITY, INNOVATION, PROSPECTIVE**
  - Creative groups on prospective topics
  - Building roadmaps for the future
  - Research and development

# KM INTERFACES: THE REGULATOR AS PART OF THE NATIONAL NUCLEAR PROGRAMME (INCLUDING TSO)

