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LTO Aspects in Area of HR, Competence and Knowledge Management

Challenges in LTO programmes implementation

Workshop on LTO Beyond 60 Years
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Long Term Operation

This presentation is based on the real outcomes from SALTO Missions.

The structure covers the area of „Human Resources, Knowledge and Competence Management“ focusing on:

- Observations and Findings in LTO programmes
- Recommended steps to successful implementation
- Conclusions

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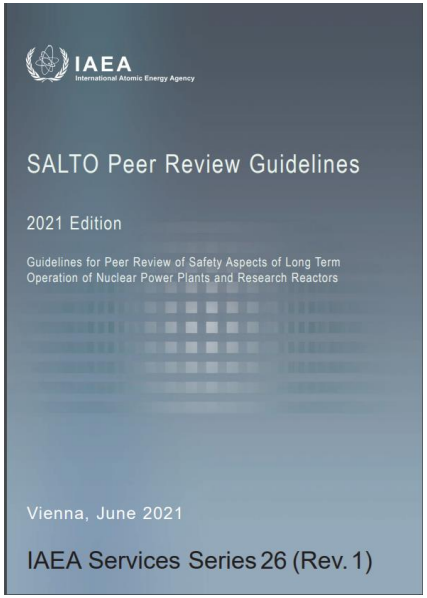


SALTO Peer Review

The purpose of Safety Aspects of Long Term Operation (SALTO) peer review service is to assist Member States in ensuring the safe long term operation of nuclear power plants, and to promote the exchange of experience and information on good practices.

SALTO peer review can be carried out at any time during the lifetime of NPP. However, the most suitable time lies within the last 10 years of the originally foreseen lifetime of the plant.

The peer review service addresses the following areas:

A. Organization and functions, current licensing basis, configuration or modification management;
B. Scoping and screening, as well as plant programmes relevant to the long-term operation;
C. Ageing management review, review of ageing management programmes and revalidation of time-limited ageing analyses for mechanical components;
D. Ageing management review, review of ageing management programmes and revalidation of time-limited ageing analyses for electrical and instrumentation and control (I&C) components;
E. Ageing management review, review of ageing management programmes and revalidation of time-limited ageing analyses for civil structures; and

F. Human resources, competence and knowledge management for long-term operation.

OBSERVATIONS & FINDINGS

Observations and Findings

The most common issues:

- Human resources, competence and knowledge management for LTO – In some plants, the human resources strategy is not implemented consistently or is missing completely.
- In some plants, the competence management and staffing is not adequate to support LTO programme implementation and safe LTO.
- In some plants, the knowledge management is not adequate to support safe LTO.

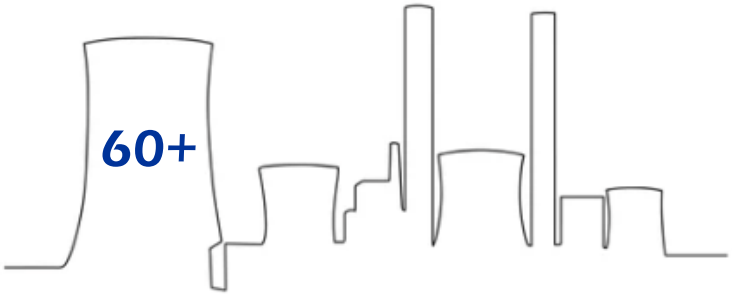
Examples of SALTO Reviews Performed by IAEA

- Human resources policy and strategy is inadequate for the LTO period.
- The plant's human resources policy and strategy is incomplete for LTO.
- The human resources policy and strategy is not effectively implemented to support all future human resources-related challenges for LTO.
- LTO staffing policy, objectives and associated strategies for human resources are not fully established and implemented.
- The plant has not finalised the process for ensuring plant personnel knowledge and competences related to ageing management activities.
- The plant has insufficient information technology to manage information and records to support the organizational objectives, strategies and needs for LTO with regards to human resources development.
- Process for securing all competences required for safe LTO is incomplete.
- Knowledge management is not fully effective to support LTO.
- The plant does not have an integrated and systematic programme for managing critical knowledge for LTO.
- Knowledge management implementation is incomplete to support LTO.

CONCLUSIONS & RECOMMENDATIONS

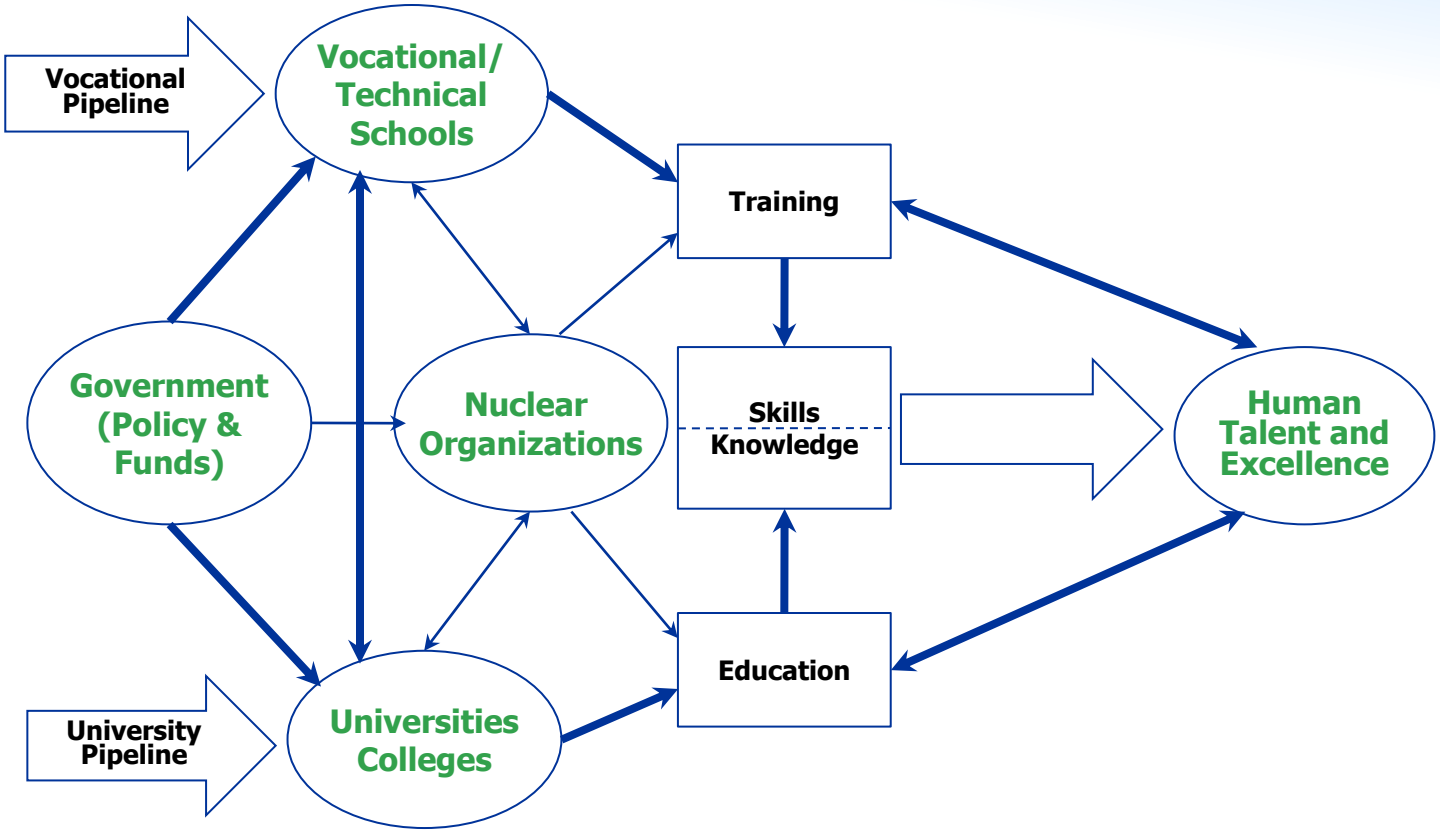
Steps to Successful LTO Workforce Planning

1. Developing **long term HR Strategy** aligned with LTO programme
2. Assessing **current** workforce
3. Analysing **future** workforce demands
4. Identifying and determining **gaps**
5. Developing **strategies** to address the gaps
6. Identifying **lead times** for developing the individuals
7. **Reviewing** the workforce plans on a regular basis



Nuclear Workforce

Sourcing Pipelines



Collaboration among Government, Industry and Educational institutions is the key for success.

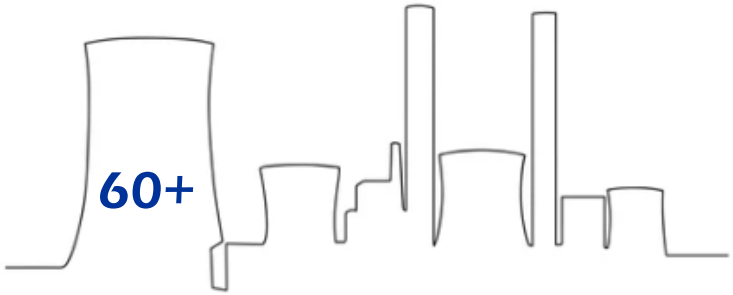
Managing Human Resources in the Field of Nuclear Energy

Organizational HR Development on level of management of individual employees through the plant life cycle.

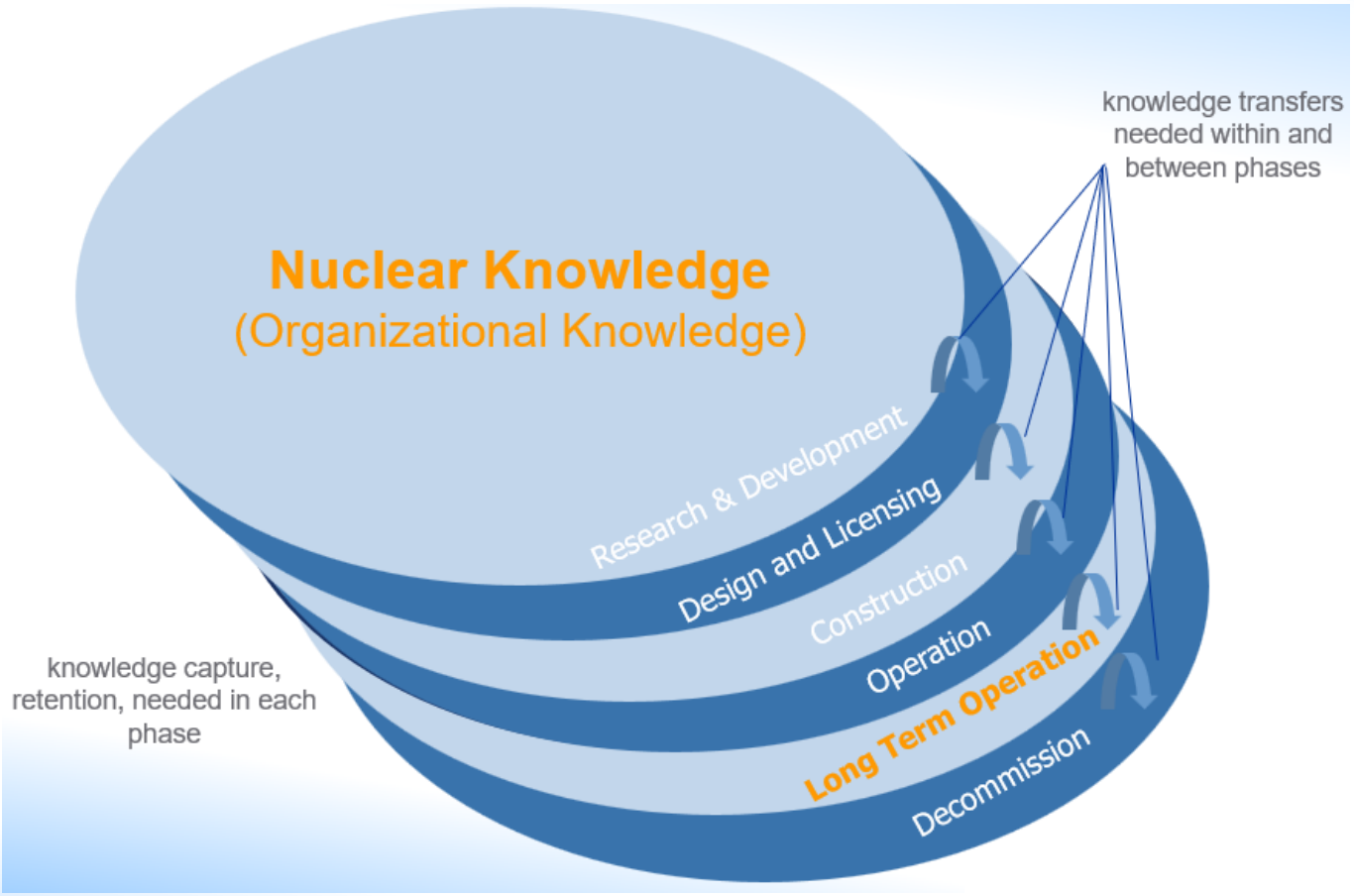
- 9 key human resources (HR) elements concerning the management of individual employees
- 4 broader organizational areas
  - organizational and safety culture,
  - stakeholder engagement,
  - diversity and inclusion,
  - change management.

Steps to Successful LTO Knowledge Management

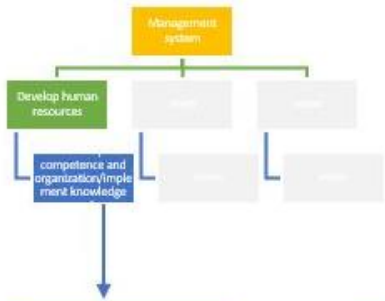
1. Developing **long term KM Strategy** aligned with LTO programme
2. Assessing **current KM** implementation
3. Identifying of the **critical knowledge** and its holders
4. Identifying the tools for the **knowledge capture / transfer** for the next generation
5. Developing the **individual programmes** to address the gaps and minimize the risks of knowledge loss
6. Identifying **lead times** for the knowledge transfer
7. **Reviewing** the KM plans on a regular basis



Maintaining Nuclear Knowledge Over the Life-cycle



Knowledge Transfer



Need of knowledge transfer

Analyze the need for knowledge transfer → **Engage resources** → **Develop individual plans** → **Implement knowledge transfer** → **Evaluate implemented knowledge transfer**

Sufficient competent personnel

Programme for knowledge transfer updated

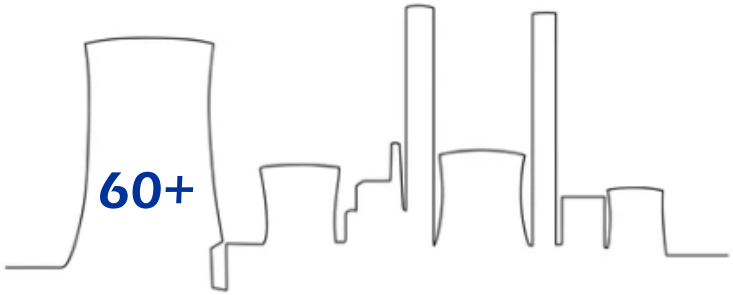
Mentor and mentee engaged

Individual plans documented

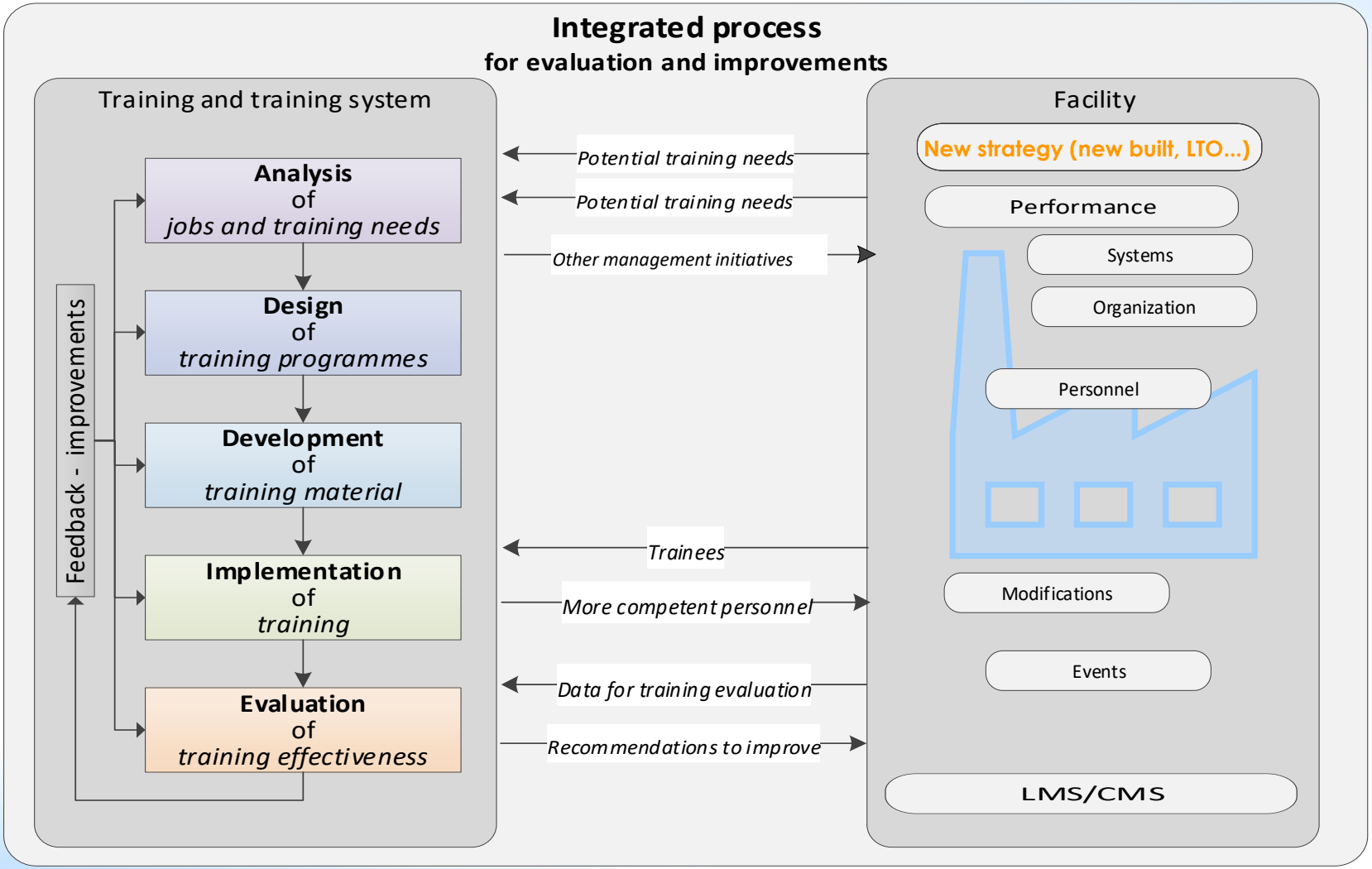
Knowledge tranfer implemented

Steps to Successful LTO Competence Management

1. Developing **long term Training and Qualification Strategy** aligned with LTO programme
2. Assessing **current SAT (Systematic Approach to Training)** implementation
3. Identifying of the **potential gaps**
4. Developing of **training programmes** in the area of nuclear technology and safety, which includes ageing management and PLiM (Plant Life Management)
5. Evaluating the **Effectiveness** of Training
6. **Reviewing** the training programmes on a regular basis



Integration of SAT Based Training And Nuclear Facility Performance Improvement



International Conference on Nuclear Knowledge Management and Human Resources Development

1-5 July 2024, Vienna, Austria

Thematic areas:

1. NKM and HRD for Building and Sustaining Capacity in **Nuclear Organizations** to support national nuclear programmes
2. Nuclear **Education** and new NKM and HRD approaches to ensure a skilled workforce for the future
3. Enabling NKM and HRD to support sustainable development of **advanced technologies**

Home: International Conference on Nuclear Knowledge Management and Human Resources Development | IAEA

The International Network on Life Management of Nuclear Power Plants (LMNPP Network)

- **Objective**: LMNPP Network has been established on the IAEA CONNECT platform to
  - promote international cooperation,
  - increase efficiency in sharing international experience in life management of nuclear power plants, and
  - provide for various project-based Working Groups to further support Member State long term operation efforts and knowledge transfer.
- **Scope**: All aspects of plant engineering, operation and maintenance including degradation, monitoring, testing, inspection, materials, design, fabrication, as well as strategic and administrative aspects of life management at all operating NPPs.
- Technical Meeting to officially announce the launch the LMNPP Network (1st – 4th Nov. 2022, Czech Republic)

Welcome to join!

https://nucleus.iaea.org/sites/connect/LMNPPpublic/SitePages/Home.aspx

New IAEA Network Supports Countries in Long Term Operation of Nuclear Reactors | IAEA

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Thank you!