

LTO Suite

Plant Life Extension Beyond Design Life

VISION

Improve the competitiveness of power plant and heating plant operators by extending plant life.

Basic functions:

- Centralized monitoring and evaluation of equipment condition
- Detect and identify causes of equipment defects in a timely manner
- Support decision-making to mitigate the impact of equipment ageing
- Determine the life of systems, structures, equipment and their components
- Develop and create new engineering knowledge and capabilities of the operator

Monitored equipment / components:

Boiler pressure parts, steamlines, turbines, condensers, heat exchangers, cooling towers, desulphurization, steel and civil structures, electrical equipment, meters and others.

BENEFITS

- Systematic approach to testing, inspections and diagnostics of equipment
- Optimize the scope and number of in-service inspections and testing of equipment
- Document the compliance with safety limits and residual life of equipment
- Extend the life of equipment beyond design life
- Improve equipment safety and reliability
- Optimize the structure and number of spare parts, reduce maintenance costs
- Optimize the planning of maintenance, repairs, replacements, modernization and innovation of equipment
- Maximize the return on plant investment

DESCRIPTION

Modular system consisting of a data layer, application core, integration and analytical layer, presentation layer, data interface and security module; client – server architecture.

Data layer:

- Equipment description data
- Testing, inspections and diagnostics data
- Control system and laboratory data
- Interface with process data warehouses (OSisoft PI System, Wonderware Historian, etc.)

Application core – Equipment Registry module:

- Equipment records, synchronization with EAM systems
- Description of technical parameters of equipment

Application core – Planning module:

- Short-term and long-term plans
- Planning of equipment / system testing, inspections and diagnostics
- Planning of inspections and calibration of specified meters and other meters

Application core – Documentation and Protocols module:

- Processing and storage of outputs from testing, inspections and diagnostics protocols and calibration sheets

Application core – Diagnostics module:

- Monitoring of selected equipment parameters
- Processing and evaluation of operational and material diagnostics of equipment
- Residual life processing and evaluation

Integration and analytical layer:

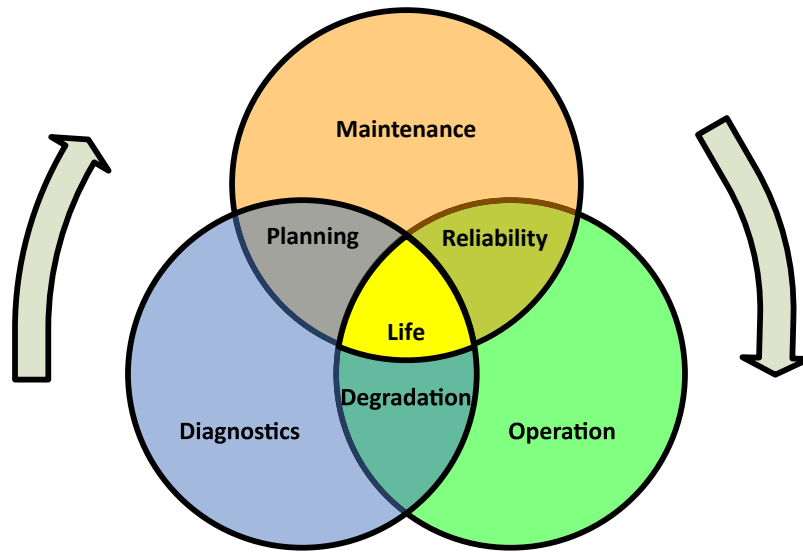
- Integration and analysis of outputs from individual application core modules and data from external information sources
- Support the formulation of final expert opinion

Presentation layer:

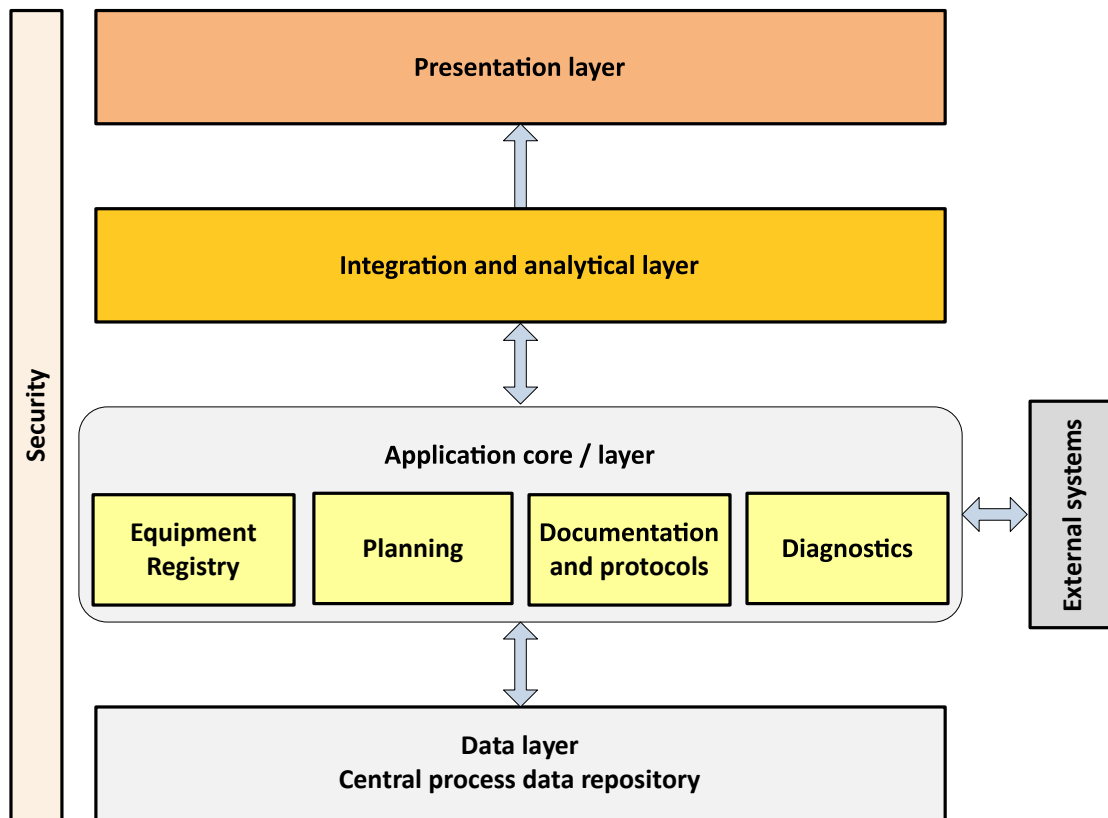
- **Structured reports**
- **Universal reporting tool ADS (Active Query System)**

The scope of supply includes technical support, consultancy and training courses focused on solving of practical problems.

LTO Suite – Concept



LTO Suite – IT Structure



REFERENCES

CEZ, Production Division	Process Equipment Monitoring IS; Techmon	2002 – 2008
CEZ, Production Division	LTO (Long Term Operation) Project SW Support ; LTO Suite	2009 – 2017
Heating Plants Brno, a.s.	SW Development and Implementation for Central Records of Meters; CEM	2010 – 2011

Contacts
 Petr Hoření, Software Development Director, P +420 602 546 822, E phoreni@ic-energo.eu
 Pavel Cvešpr, Project Manager, P +420 606 718 987, E pcvespr@ic-energo.eu