



SAP Nuclear **a new software for Radiation Protection in** **Slovenské Elektrárne-Enel**

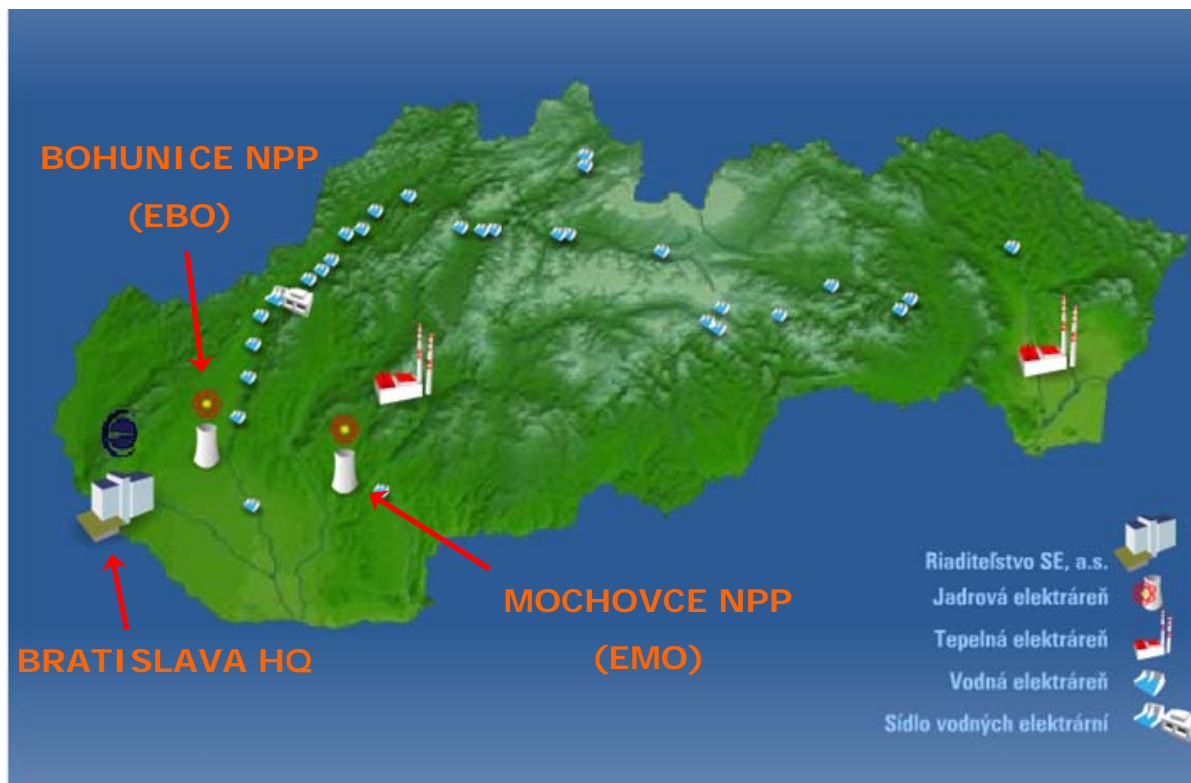
L'.Dobiš, Š.Grubel, F.Putignano

Cambridge, Nov 17th 2010

Agenda

- Background
- Project Objectives and Strategy
- Project Structure
- Project Schedule
- EH&S Team scope
- IT solution
- Challenges and Early Feedback

Background



VVER 440-213

EBO V2 (2 x 505MW)

Unit 3: Op. 1984

Unit 4: Op. 1985

EMO (2 x 470 MW)

Unit 1: Op. 1998

Unit 2: Op. 1999

Unit 3-4: expected 2012-2014

Background

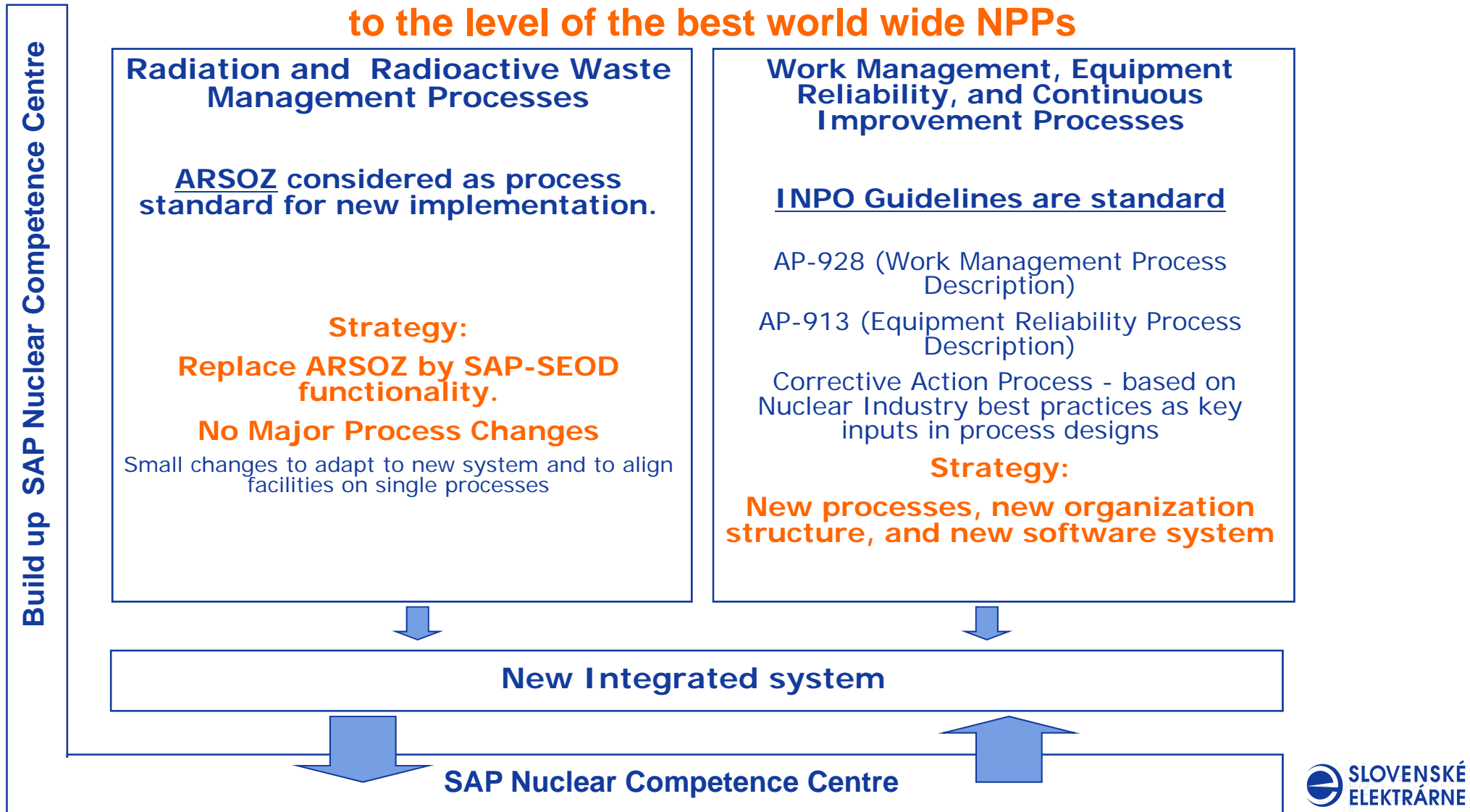
SAP Nuclear project: the need for change

SE long term goal: perform in the world PWR top decile

- Gaps to Nuclear Industry Best Practice were highlighted in the following areas:
 - Work Management
 - Equipment Reliability
 - Corrective Action
 - Operating Experience
 - Self Assessment
 - Benchmarking
 - Human Performance Improvement
- Many nuclear business processes were not integrated
- Inconsistent program application between EMO and EBO; internal Best Practices not implemented
- Existing Software Systems not able to support Industry Best Practice Programs
- Existing Software Systems not in use outside of the Slovak Republic

Project Objectives and Strategy

**Improve EBO and EMO safety and operational performance
to the level of the best world wide NPPs**



Project Objectives and Strategy

- **Open Nuclear Behavior**

Every project team member has right and commitment to raise possible or substantive risks or problems.

- **System Completely Tested**

- **Organization Aligned with Processes**

- **Training milestones approach**

100% end users trained before Go Live. All Nuclear Staff trained and qualified on the new processes and software

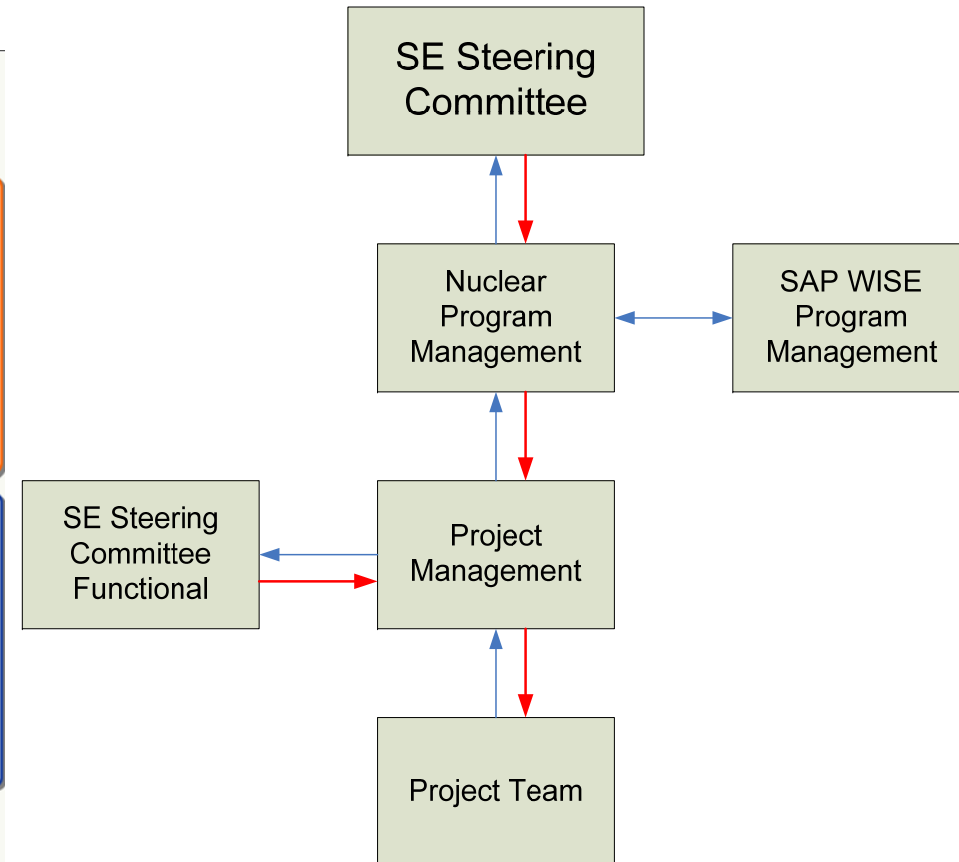
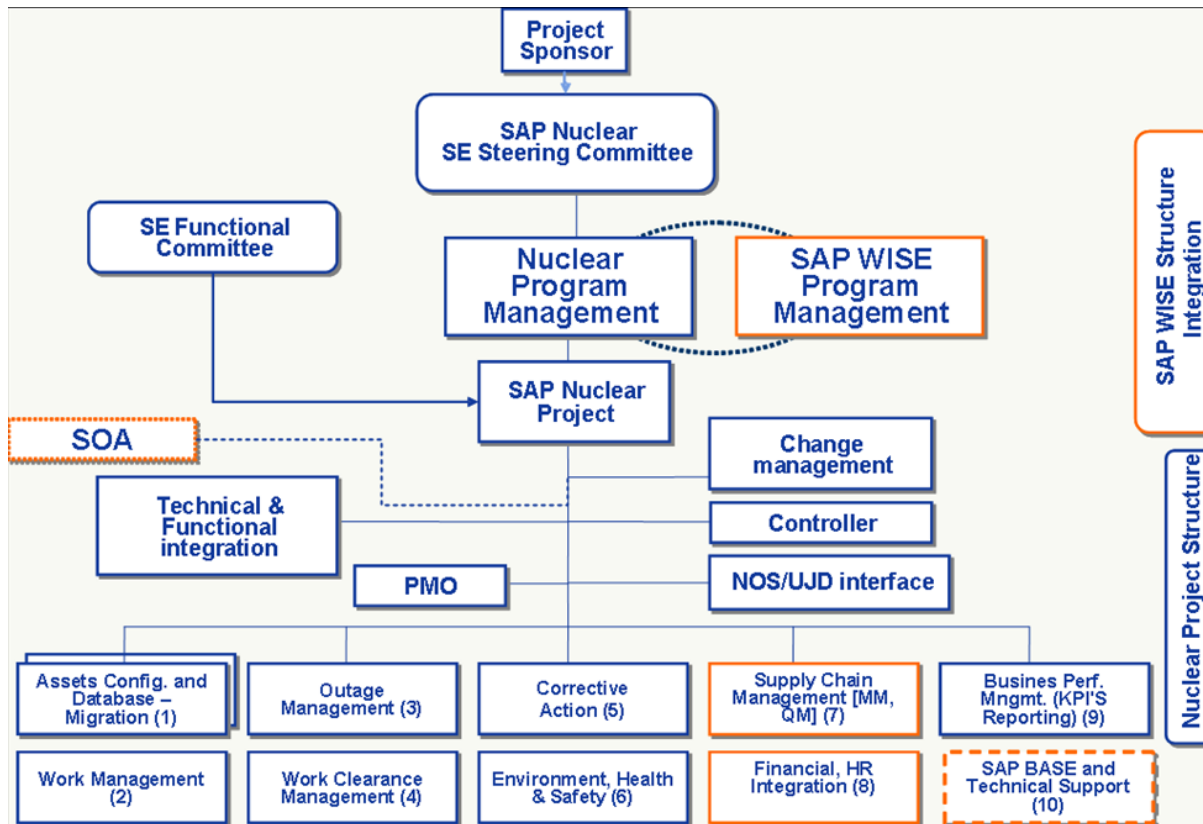
- **Secure and Seamless Go Live**

2 months stabilization period before affected nuclear plant outage. Approved all SLA, prepared SAP Nuclear Competence Centre and trained SAP Nuclear Competence Centre team.

- **Acceptance of the change**

Project teams composed of line organization members, Change Management Team, Train-the-Trainer approach.

Project Structure



Proj



EH&S Team Scope

- Access management to the RCA
- Radiation Work Permits and ALARA management
- Operational Dosimetry
- Legal Dosimetry
- Laboratory Measurements and Releases
- Radioactive Waste
- Management of Chemicals
- Management of RA-sources and RA-materials transport
- Metrology

IT Solution: Master Systems

SAP HR (global)

- Basic personnel data
(Enel EEs)
- Medical checks
(Enel EEs)

SAP HR (nuclear)

- Basic personnel data
(Contractors)
- Medical checks
(contractors)
- Training (contractors)

SAP PM

- RWPs
- ALARA
- Metrology

SAP EHS

- Environmental Labs
(sampling and meas.)
- Chemicals Management
- Rad. Sources & Materials
handling and transportation

SEOD

- Operational Dosimetry
- Legal Dosimetry (incl. Int. Cont.)
- Higienic Loop
- Single Entry Permits into the RCA

ELS

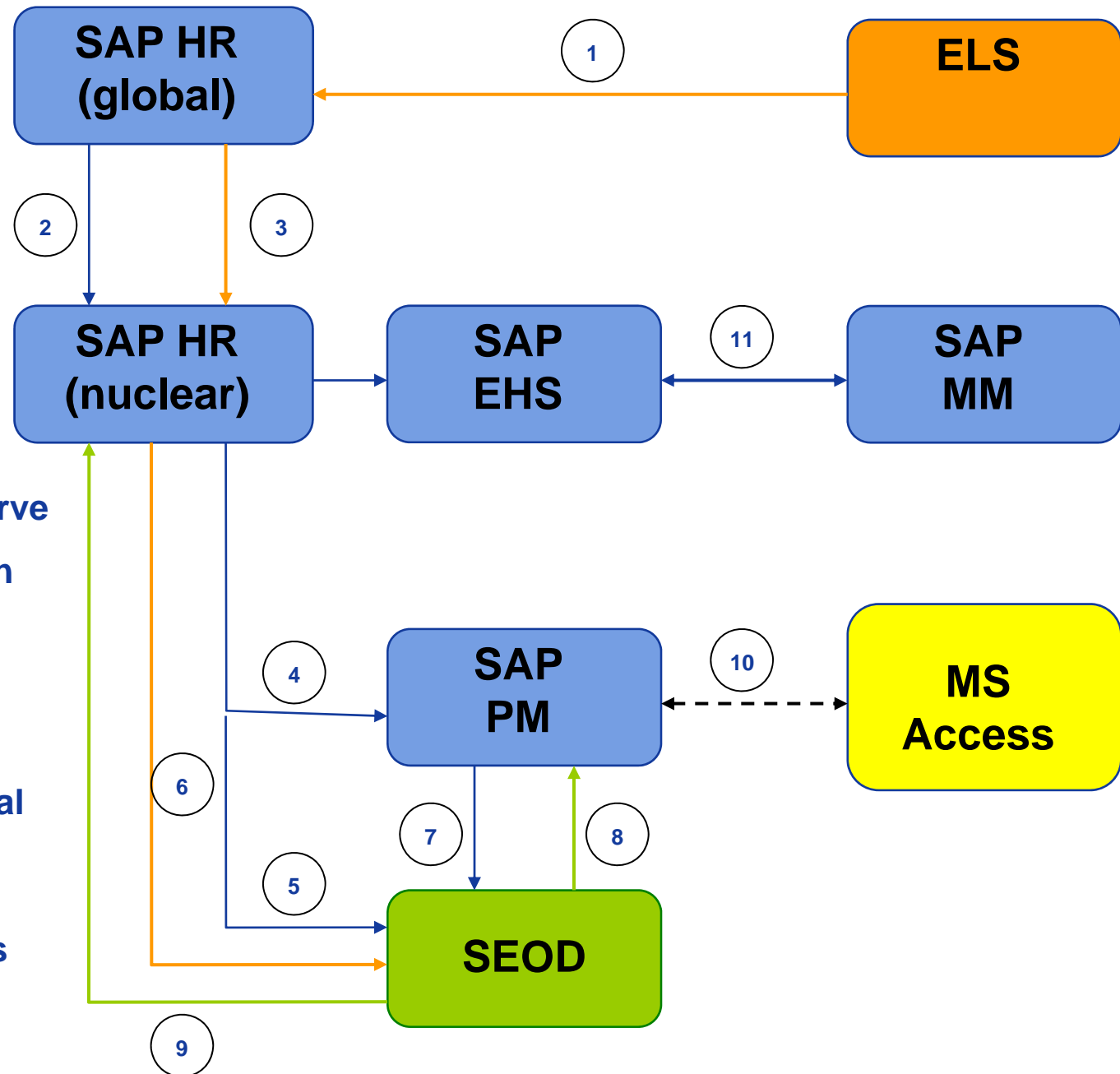
Training (Enel EEs)

MS Access

RadWaste

IT Solution: Interfaces

- 1 EEs training
- 2 EEs basic data + medical
- 3 EEs training
- 4 Personnel data, RCA permit validity, operational dose reserve
- 5 Personnel database replication
- 6 Personnel database replication
- 7 RWPs
- 8 RWP doses, manhours in the RCA
- 9 RCA permit validity, operational dose reserve, monthly/yearly legal doses
- 10 RAW planned/actual quantities for WOs → toward RAW minimization
- 11 Chemicals



IT Solution – New Hardware

VAD: Automatic FD Dispenser

VAK: Automatic Key Dispenser

- **Personal badge:** check on H&P capabilities, permit validity
- **FD:** Film Dosimeter is automatically provided and stored in univocally assigned slot
- **Keys:** person is identified through badge and locker is assigned



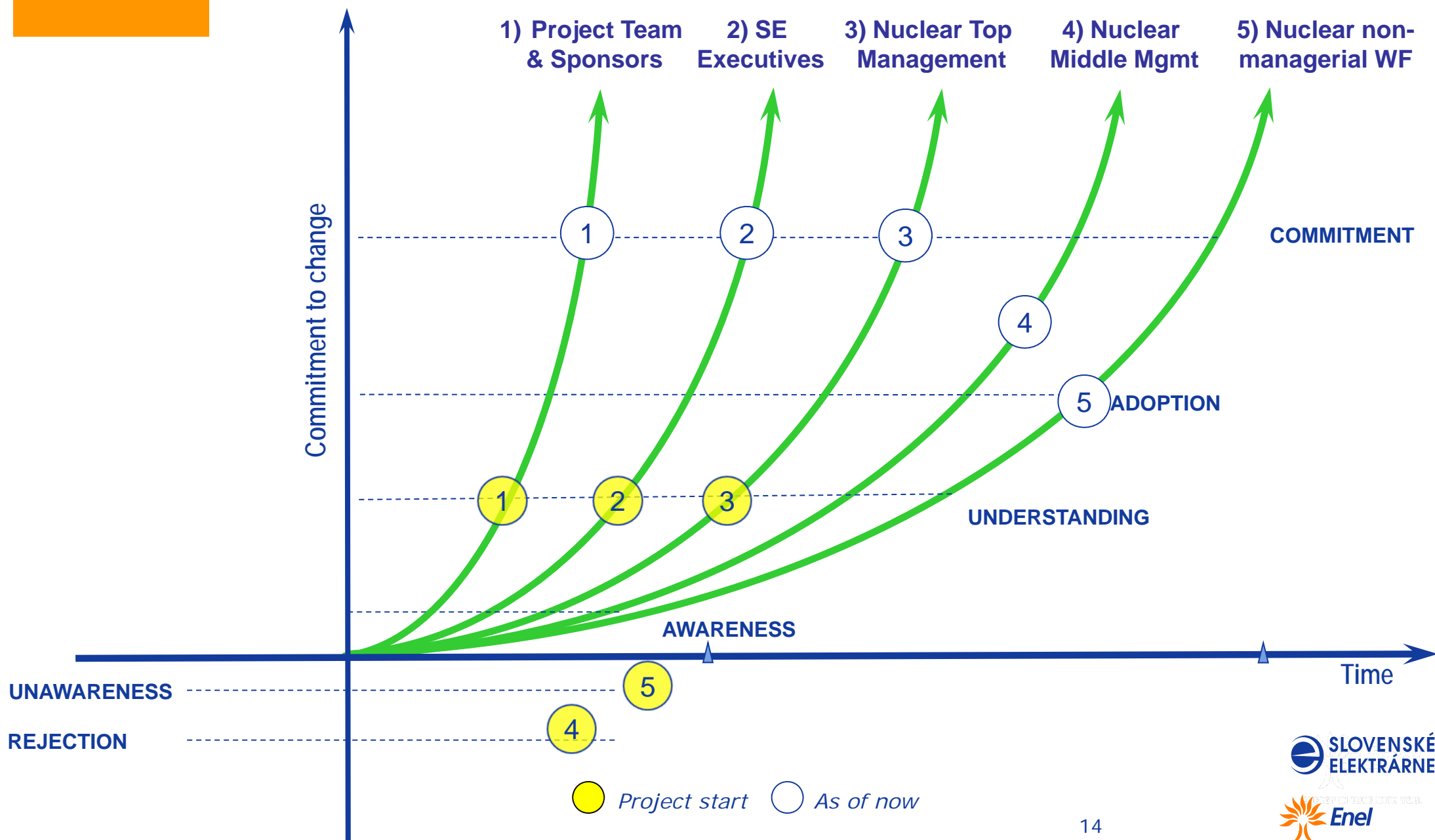
IT Solution – New Hardware

Optical readers at RCA Entrance and Exit

- **Personal badge:** check on H&P capabilities, permit validity
- **EPD:** dosimeter reset, limits set-up, dose count, partial readings
- **RWP:** barcode reader, personnel sign-up and dose assignment
- **Exit checks:** returned FD, returned keys



Challenges and Early Feedback



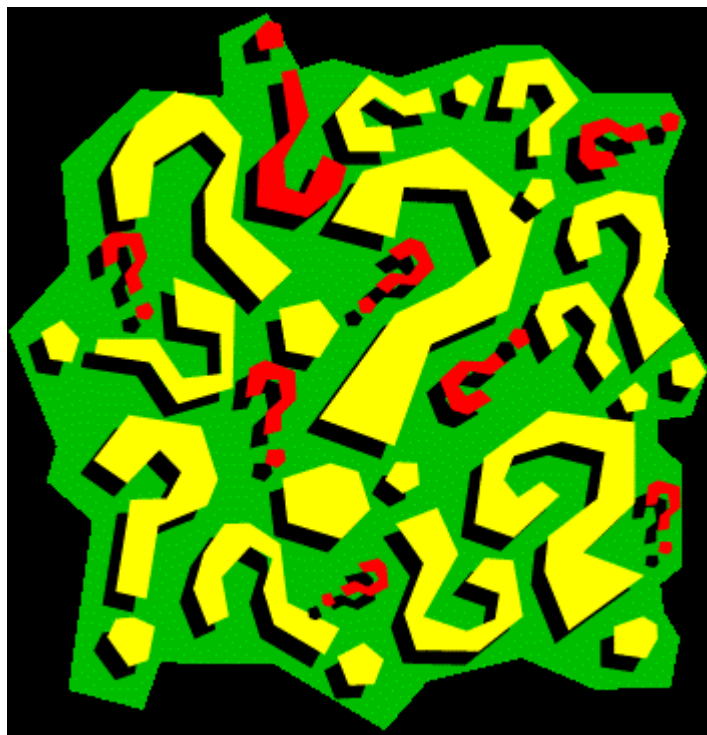
Challenges and Early Feedback

- Continuous improvement and adjustment – Process and software changes regulated through Peer Group system;
- Management commitment
- Language barrier
- Line organization involvement
- Change management
- Interfaces – system stability
- Data quality

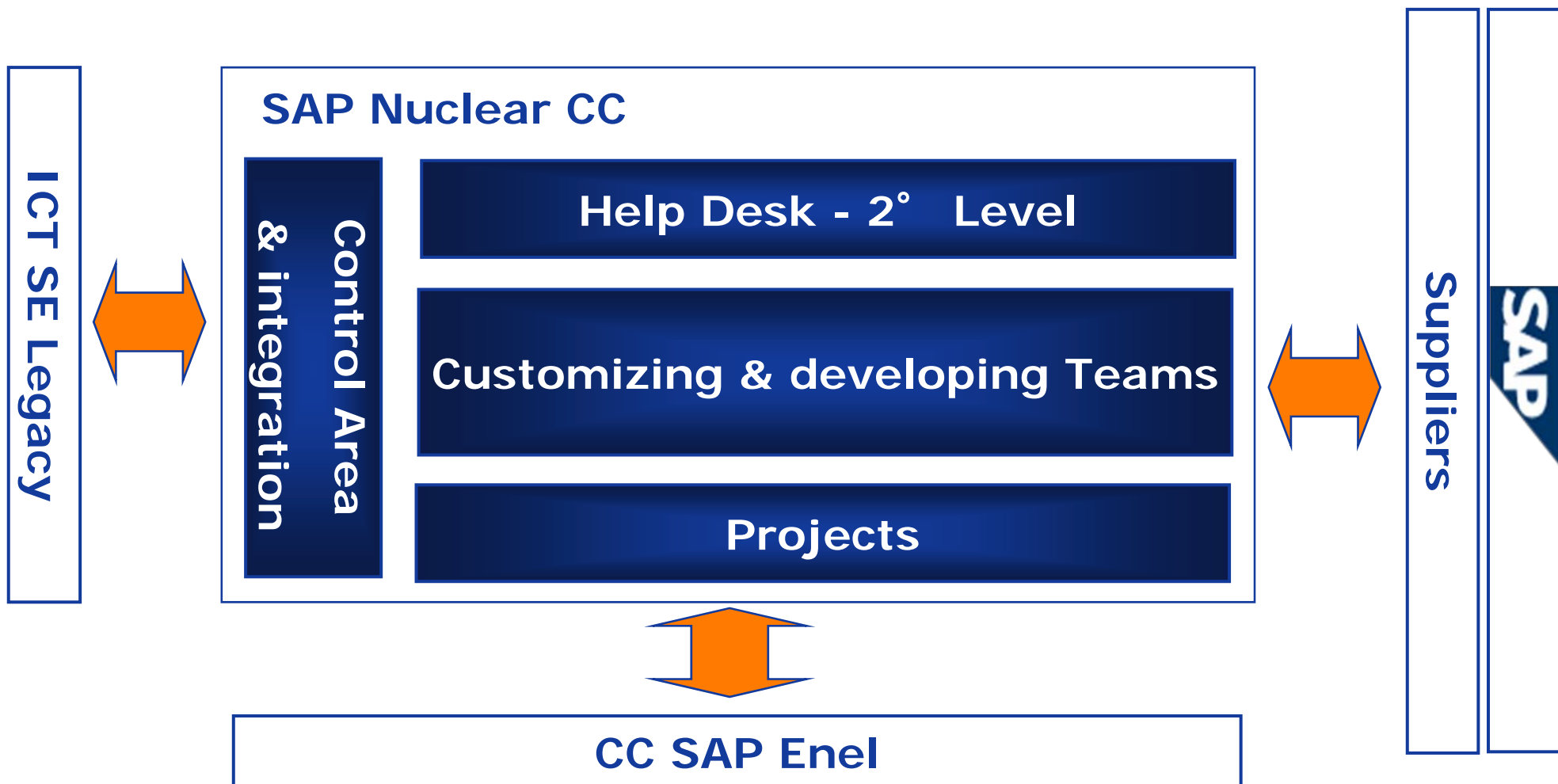


THANK YOU!

Questions?



Backup – NCC



Backup – NCC role

- Continuous support for processes and applications in operation;
- Contact point and solution centre for issues related to radiation and maintenance processes;
- Responsible for international baseline solution and evolution;
- Delivery of new applications and maintenance of existing ones;
- Support for future rollouts and integrations within SAP Nuclear area;
- International know-how sharing within SAP Nuclear area;
- Periodical reports to process owners and key users to assure evaluation and improvement of provided support services.