

Role of Artificial Intelligence in Strengthening the
Security of Nuclear Facilities
Experience in

Mochovce NPP Slovakia



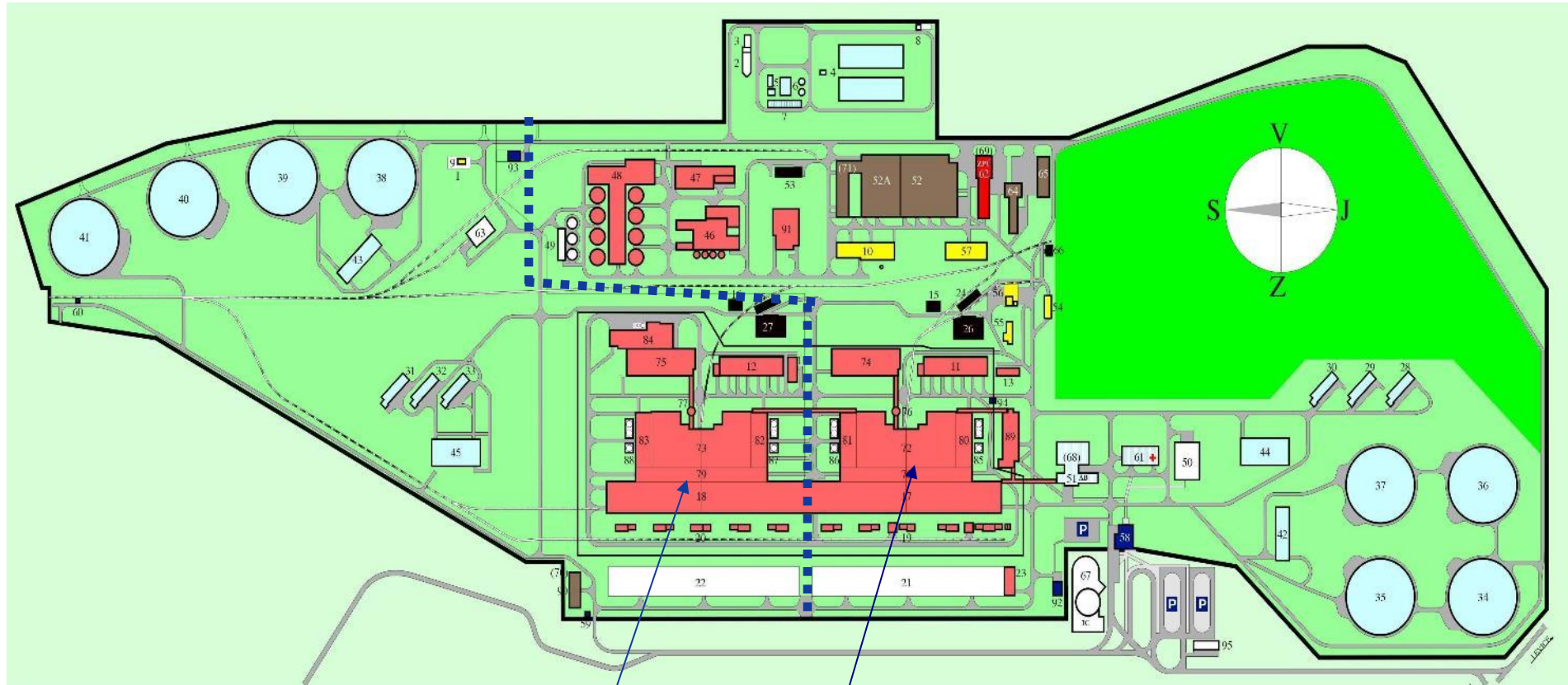
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Mochovce NPP Layout

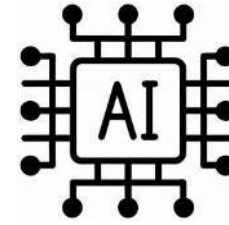


Unit 3&4

Unit 1&2



□ Why selecting a new technology



- Existence of a large number of different types of CCTV cameras in the system
- Insufficient reliability of the existing motion detection technology
- Reduction of the number of false alarms triggered by motion detection
- Need to keep the existing CCTV cameras in the system /cost reduction
- Increasing the level of security of the physical protection system



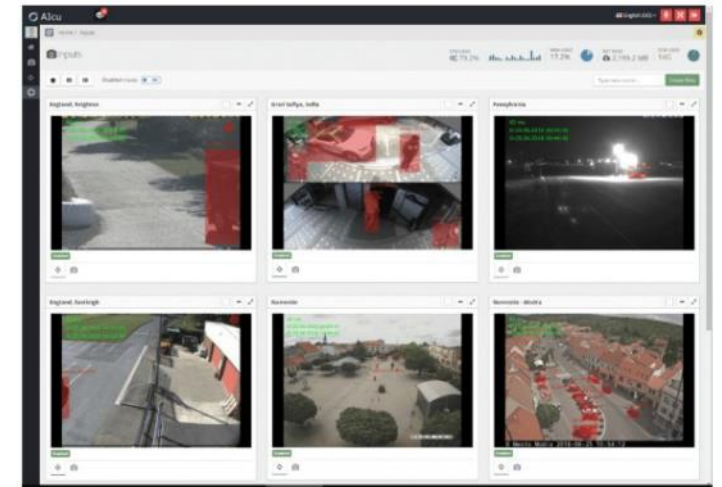
❑ Examples about incorporating AI into the security arrangements.

NOW IMPLEMENTED:

- Video Surveillance and Monitoring - Object Detection
- Video Surveillance and Monitoring – Tampering

FUTURE PLAN:

- Underbody car scanner - Support for operator during inspection
- X-ray contraband detection – Support for operator
- Video Surveillance and Monitoring by patrol drone - Object Detection
- Biometric entry control – change Palm secure to facial recognition



□ What has been our experience, and what lessons have we learned

Video Surveillance and Monitoring - Object Detection

- Limited experience with usage = longer test period
- Existing models need to be trained on-site also
- False alarm rate decreased significantly

Video Surveillance and Monitoring – Tampering

- Existing models need to be trained on-site also
- Significant reduction in man-hours
- Exclusion of the human factor
- Increase in the level of security



❑ What role have regulatory bodies played in the AI selection and adoption process?

- There is no legal framework for the use of AI
- All steps of implementation were consulted with the regulatory bodies
- The Nuclear Regulatory Authority was continuously informed about the results of individual tests
- The Nuclear Regulatory Authority has so far agreed to the parallel deployment of AI with the original systems



❑ Identified risks associated with AI implementation

- The existing models on which the AI was trained may not be sufficient possible unexpected behavior
- AI may not be universally applicable in all cases, e.g., tampering at gates with heavy traffic
- possible change in legislation that may adversely affect the already established system



**Thank you for your attention
/ QUESTIONS**

