

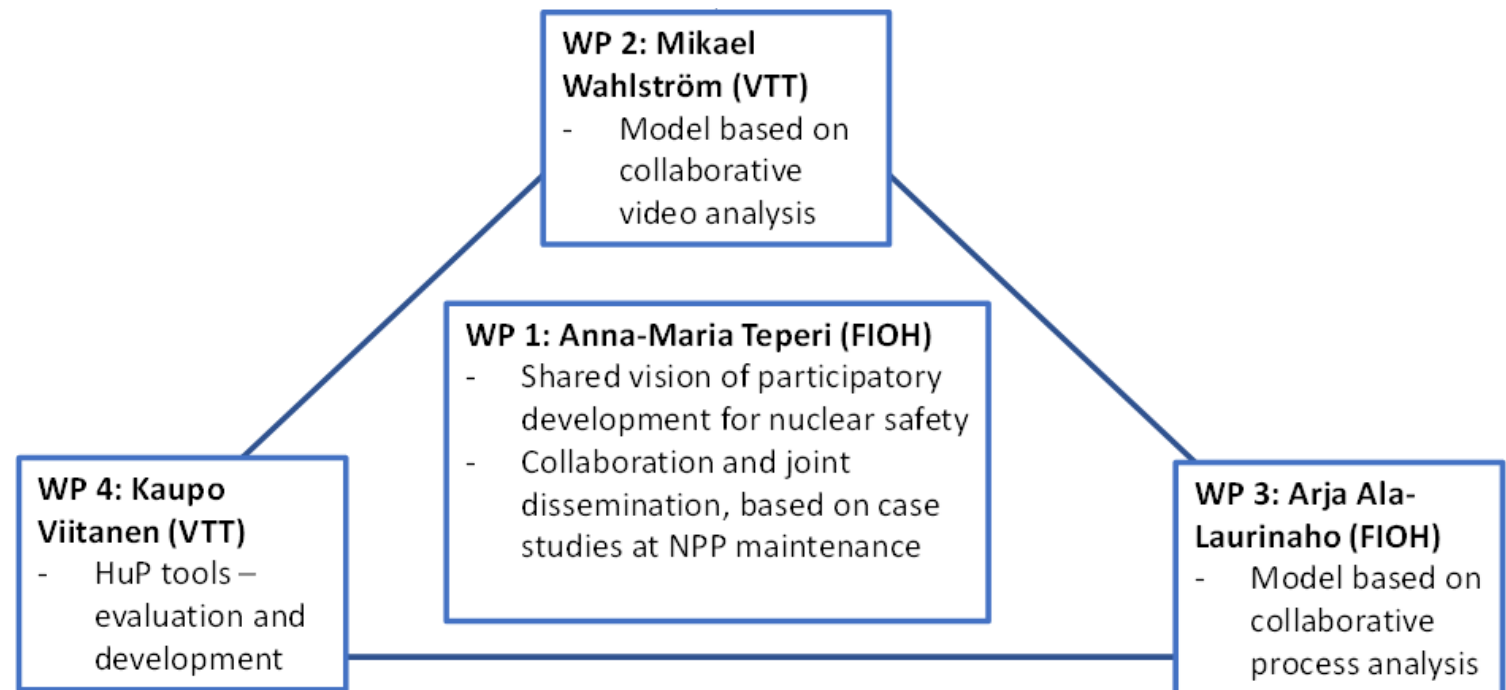
Participative development for supporting human factors of safety (PARSA)

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Shared vision of Participative Development (PD) to improve nuclear safety

- Needs and motivation
- Three methods:
 - Work process analysis
 - Video reflection
 - Human Performance (HU) Tools
- 'Shared view' of PD
 - Method development with NPPs
 - Facilitation of PD at NPPs



Specific models and tools applied, to evaluate approach of Participative Development (PD), to improve nuclear safety

Work Process Analysis (orig. Leppänen, 2000; modified Teperi et al. 2019)

Aims and principles of the method

- **Focus:** every day work from actors' point of view of
- **Participative:** workers, supervisors, experts, managers of the process
- **Collective learning:** sharing and creating work process knowledge
- **Critical analysis:** systemic view of work; interfaces, disruptions
- **Develop & create solutions:** ideate, plan, implement
- **Visualize:** to enhance shared view and understanding.

WPA applied in the NPP

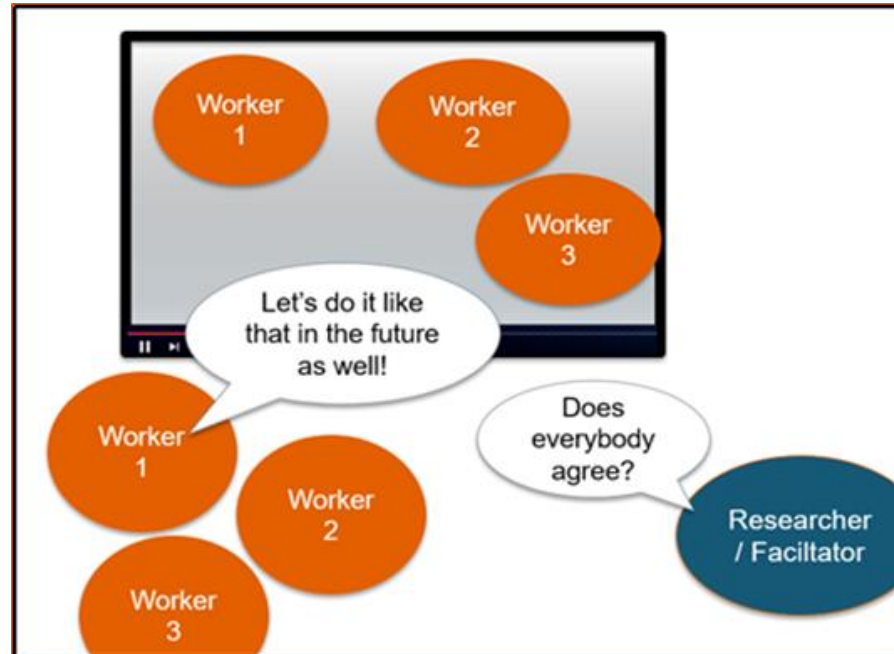
- Collaboration in four disturbance cases:
 - Assemblers, Supervisors, Engineers, Management, Safety Experts together
- Collaboration between functions in Modifications: Scheduling and planning a compressor change
 - Representatives from Engineering, Operations, Maintenance



Video-based method for collaborative learning & development

Main purposes:

- **Before task operations** for refreshment training
- **After task operations** for reviewing & reflecting group activity
- **After incident review** for reviewing & reflecting group activity; reasons for incident
- **Procedure development**
- **General training** for new workers



Evaluation based on current procedures.

Re-evaluation based on video observation and discussion.

Common understanding on improvements and changes in work.

Further insights:

- The idea is currently well-received
- Safety-critical activity should be carefully selected for video recording and analysis
- Method utilization with HU tools pre-job briefing and post-job review will be further investigated
- The goal is to create practical methods for the use of NPP personnel to improve organisational learning

HU tools development

Human Performance (HU) tools development

HU tools are techniques implemented in nuclear industry to improve plant performance/safety by reducing human error and facilitating human performance

Main purposes

- Identify success factors related to pre-job briefings and post-job reviews
- Examine ways to support implementation of post-job reviews

Approach

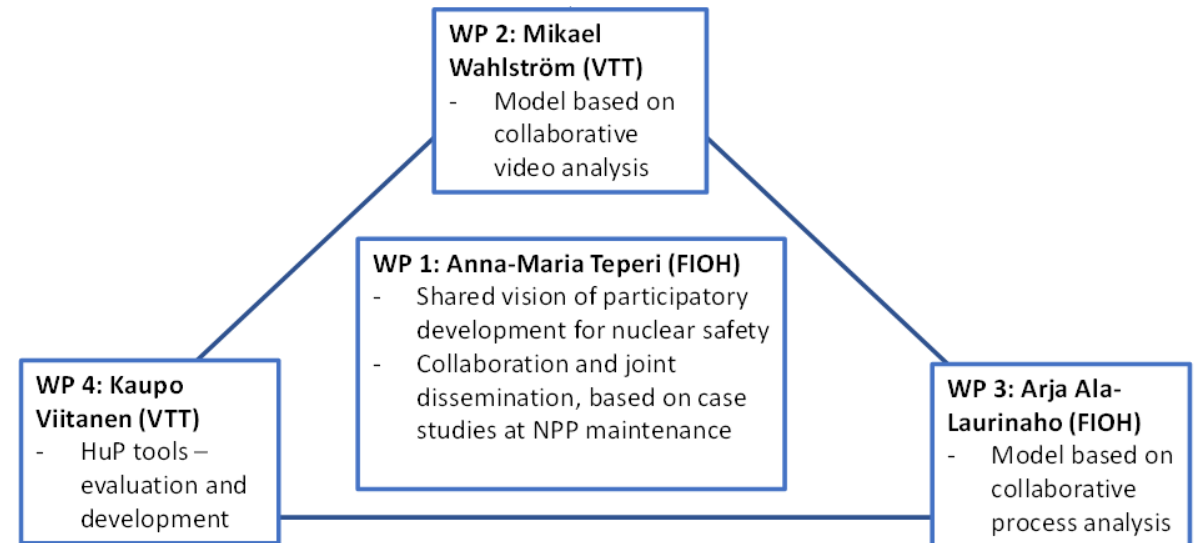
- Analysis of pre-job briefing and post-job review feedback data
- Examination of HU tool use (at NPPs if COVID-19 situation allows, by utilizing video data analysis and work process analysis)



Shared vision of PD to improve nuclear safety

Conclusive points and lesson learned:

- **Importance of case selection** for collective analysis and learning; motivation & practical needs
- **Joint discussion** was valued; shared view on every day work and its development needs
- **“Positive learning”**: success factors and cases are important to be noticed
- Three **methods complement each other**, e.g.:
 - WPA: Big picture of work processes and their interconnections
 - Video: Specific work phase with critical procedures
 - HU *analysis* and HU *developments* using the WPA and Video –methods.



From specific models and tools to shared view of Participative Development (PD), to improve nuclear safety

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Thank you!

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