

**Sustainable and Future oriented expertise -
SAFEX2014**

**Factors behind employees' own activity to
develop their expertise in the nuclear
energy sector**

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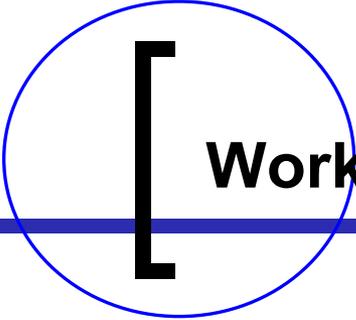
[Introduction (1/2)

- Organizations operating in nuclear power industry are extremely dependent on their employees' expertise due to the safety-critical nature of the industry
- Expertise in the nuclear power industry is considered to include knowledge, skills and long experience on the specific technical or other domain
- Also strong motivation and independency are qualities often associated with experts and expertise.
- *The Sustainable and Future Oriented Expertise (SAFEX2014), like the earlier Expert work in safety critical environment (SAFEX) project, aims to generate new knowledge on development of expertise and competence management on Finnish nuclear energy organizations*

[Introduction (2/2)

The findings of earlier SAFEX-project [Pahkin et al. 2011] have already shown that the development of individual expertise in the nuclear power industry is related to

- the content of work,
 - the actions of the closest superior,
 - the functionality of the work group, and
 - to the way a superior takes into account the safety-critical aspects of the work
- *But what else is needed? For example, what is the role of work engagement?*

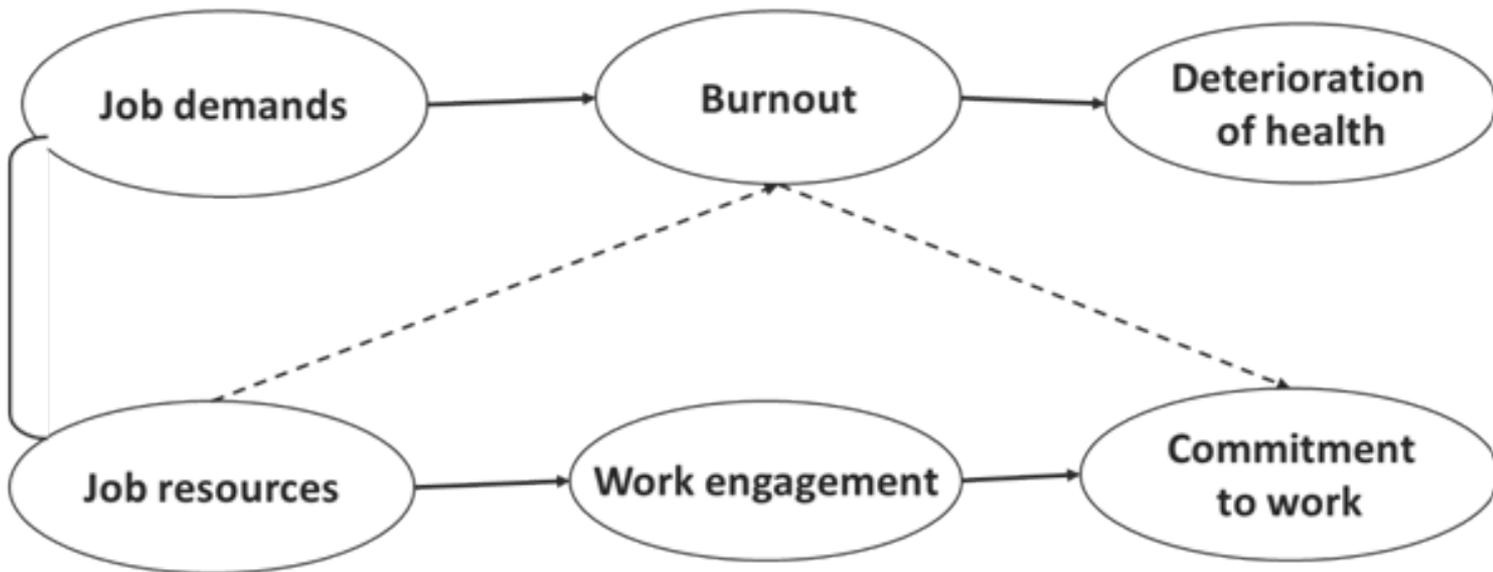


Work engagement – what is it?

- Work engagement can be described as a positive state of emotional and motivational fulfilment at work, characterized by vigor, dedication, and absorption [Schaufeli et al., 2002].
 - Work engaged employees are known to be intrinsically motivated towards their work [van Beek et al., 2011], they take initiative [Hakanen et al., 2008], and also show pursuit of learning [Sonnentag, 2003].
 - Developing one's own expertise is seen to be extremely dependent on the individual employees themselves and thus being engaged to one's work could be significant contributor to this kind of activity, achievement at work.
- *What are the factors which can produce work engagement?*

Job demands and resources model [Schaufeli & Bakker, 2004; Hakanen, 2009]

Drain of energy (jaksamispolku)



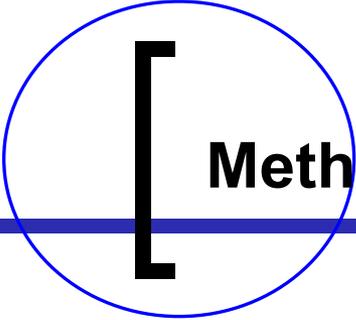
Path to motivation and well-being (voimavarapolku)



Aim of the study

To find out

1. Do the job resources and demands differ among employees' who experience different level of work engagement?
2. What are the main resources behind work engagement in safety critical organizations?
3. What is the role of work engagement on the development of expertise?



Methods (1/3)

- In 2012, 770 experts from six Finnish nuclear industry organizations answered a questionnaire on the organizational practices and the improvement of expertise
- The aim of the survey was to analyse and evaluate the content of learning organizations e.g. organization of work, actions of the supervisors, employees' well-being, motivation, work engagement and competence development of the experts

Methods (2/3)

Following main variables were used

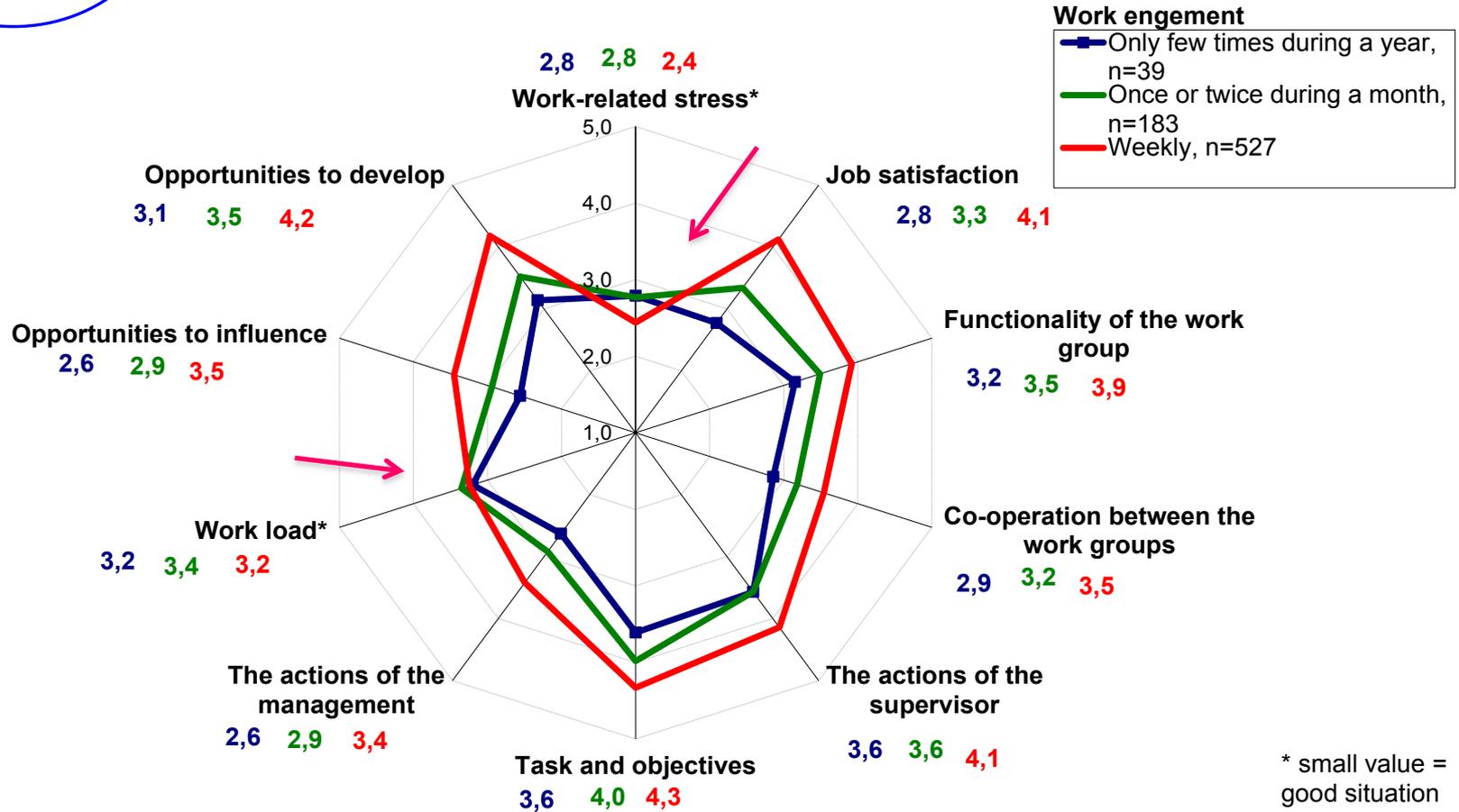
- Own activity to develop expertise with single question: *"I have focused on developing my skills in accordance with the demands of the work"*
- Work engagement was measured with three subscales (vigor, dedication, absorption) of the Utrecht Work Engagement [Schaufeli et al., 2002]
- Other sum scales were: functionality of the work group; co-operation between work groups; actions of the supervisor, actions of the management; task and objectives; work load; opportunities to influence and develop
- Work-related stress and job satisfaction were measured with single question

[Methods (3/3)

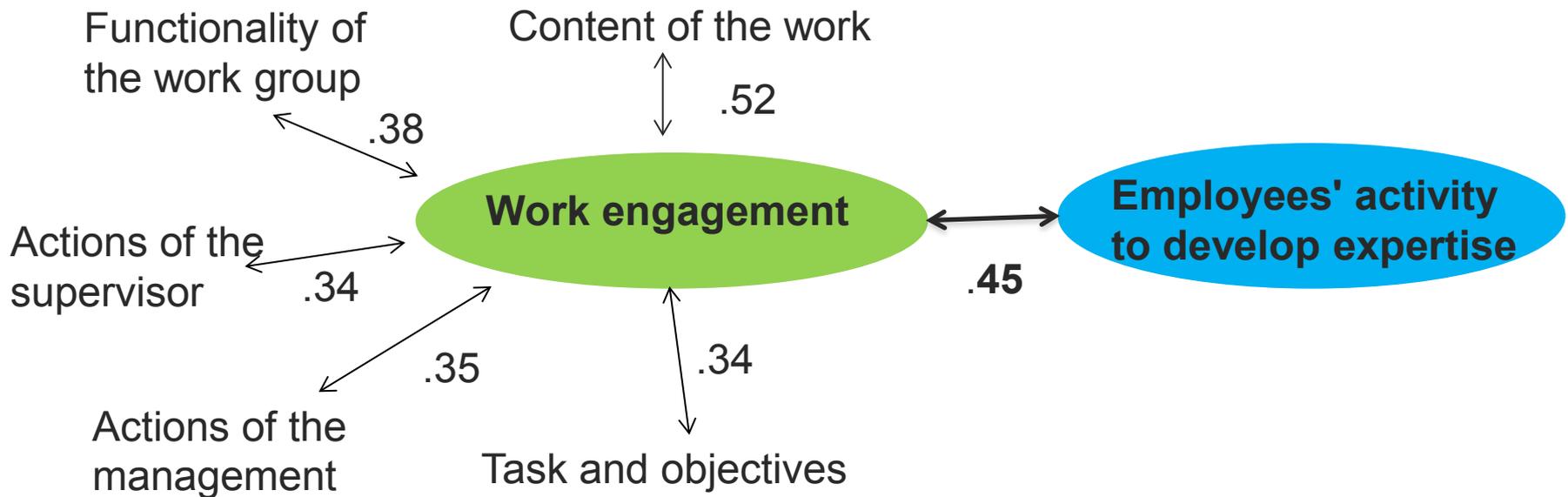
Employees' were grouped into three group based on their work engagement:

- ✓ Group 1: those employees who seldom, **only few times during a year, experience work engagement** (low engagement, n=39);
 - ✓ Group 2: those employees who sometimes, **once or twice during a month, experience work engagement** (medium engagement, n=183); and
 - ✓ Group 3: those employees who often, **weekly, experience work engagement** (high engagement, n=527)
- We used factor analysis and Cronbach's alpha to test the sum scales. Correlation to test connections between variables, and regression analyses to find out how much the variables explained about employees' own activity to develop expertise

Results (1/4)



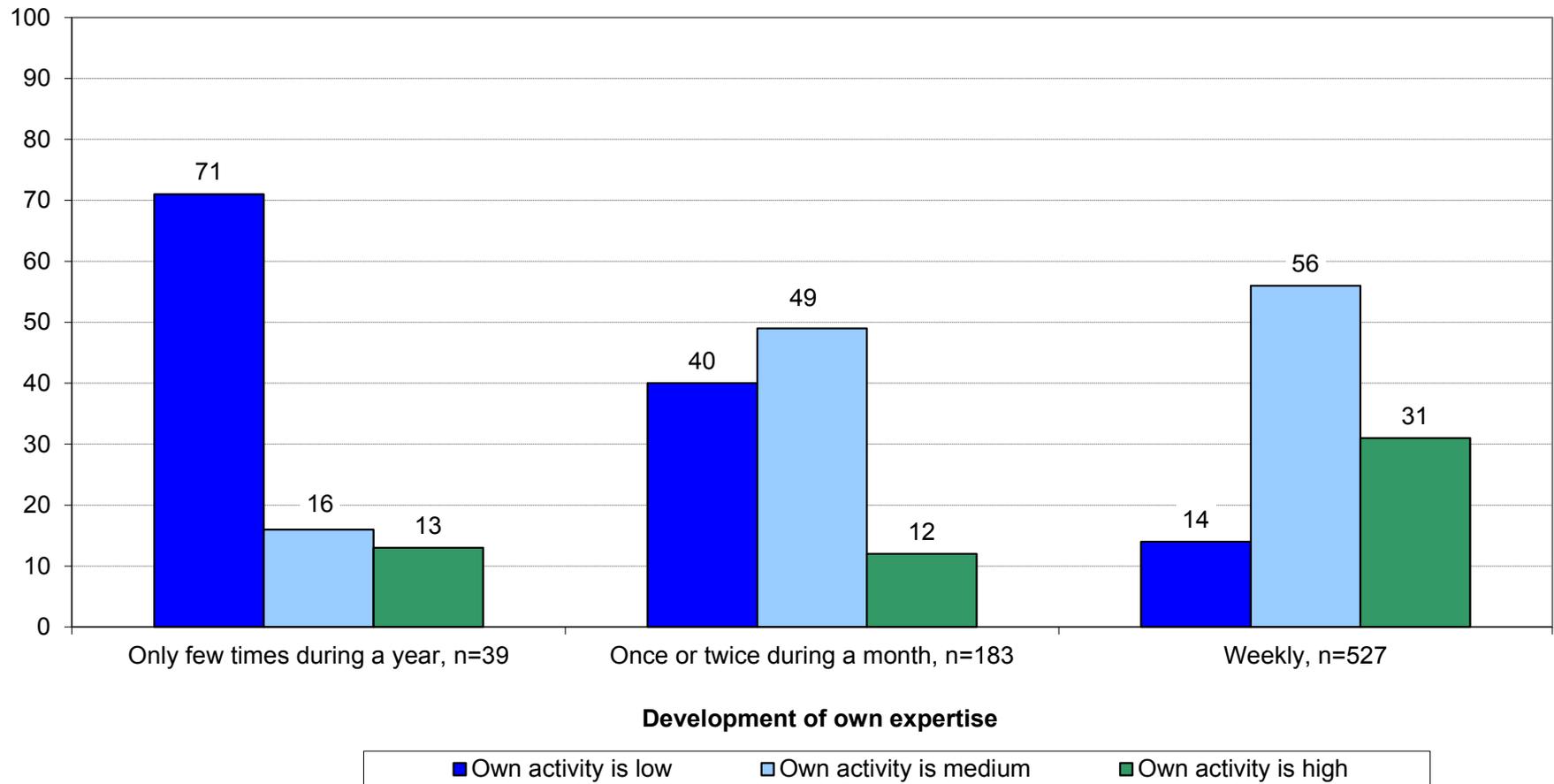
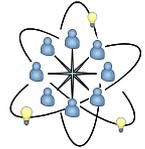
Results (2/4)



Gender, age or supervisory position, were not connected to the work engagement

Results (3/4)

Work engagement (mean)



Results (4/4)

Functionality of
the work group

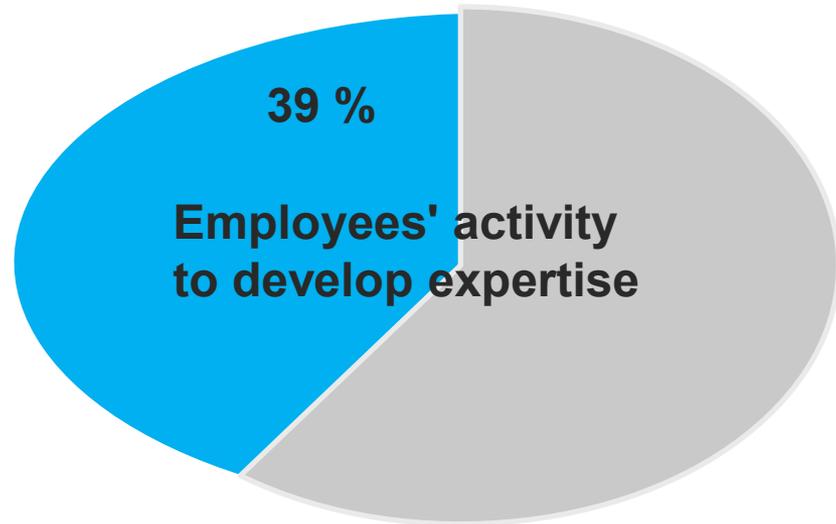
**Actions of the
supervisor**

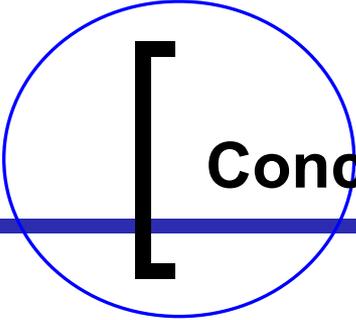
Actions of the
management

Work engagement

Content of the work

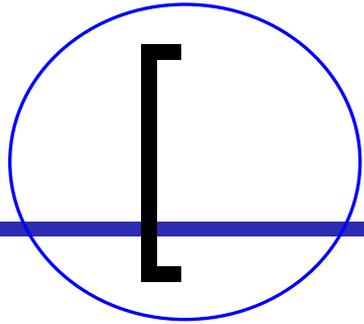
Task and objectives





Conclusions

- Good job-related resources are important to employees' well-being
- Issues related to the work tasks and social support are associated with work engagement
- Work engagement is positively associated with employees' own activity to develop their expertise
- Especially support from superior, work tasks and work engagement are closely related to employees' own activity to develop their expertise
- *It is important that the nuclear industry organizations continue to pay attention to these factors and thus make sure that there is a good foundation for development of expertise available for all employees working in the organization.*



Thank you!

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