



Mapping Methodical Change in Safety Culture

Presented at PSAM14, Los Angeles, 20.9.2018

Kaupo Viitanen (VTT),
Teemu Reiman (Lilikoi Consulting),
Carl Rollenhagen (KTH, Vattenfall),
Nadezhda Gotcheva (VTT)



Motivation

- Organizations operating in safety-critical industries are expected to continuously improve their safety culture
- There are a wide variety of safety culture models describing its ideal state, and a plethora of practical tools which allegedly have a positive influence on safety culture
 - BUT: the understanding of how safety culture change occurs and what is the role of systematic use of practical tools in influencing safety culture often remains implicit
- → It is unclear what the main factors are that need to be taken into consideration when attempting methodical change in safety culture



Solution

- To address this shortcoming, the authors developed a set of twelve **principles of safety culture change** based on results from a expert workshop and a limited literature review
- The principles crystallize the essential good practices of leading safety culture change and implementing safety culture improvement tools, covering topics such as:
 - Understanding the nature of sociotechnical systems and how culture emerges and changes in them
 - Setting goals in complex, nested and conflicted systems
 - Identifying and leveraging various types of interactions within the system
 - Acknowledging the existence of different spatial and temporal scales when initiating culture change

PRINCIPLES OF METHODOLOGICAL SAFETY CULTURE CHANGE



Consider the **dynamics** between classes of system elements

Select the **boundaries** of the system you want to change

Select the system **elements** you want to change

Acknowledge that safety culture is not **monolithic**

Understand what organizational members **actually do**

Identify the **assumptions** embedded within safety culture change tools

Identify and make use of the **indirect effects** of safety culture change tools

Acknowledge that safety culture cannot be **directly** changed

Consider the influence of **power relations**

Involve the **target group**

Information acquired in safety culture activities may be useful in the future

Do not expect **rapid change** in values and assumptions



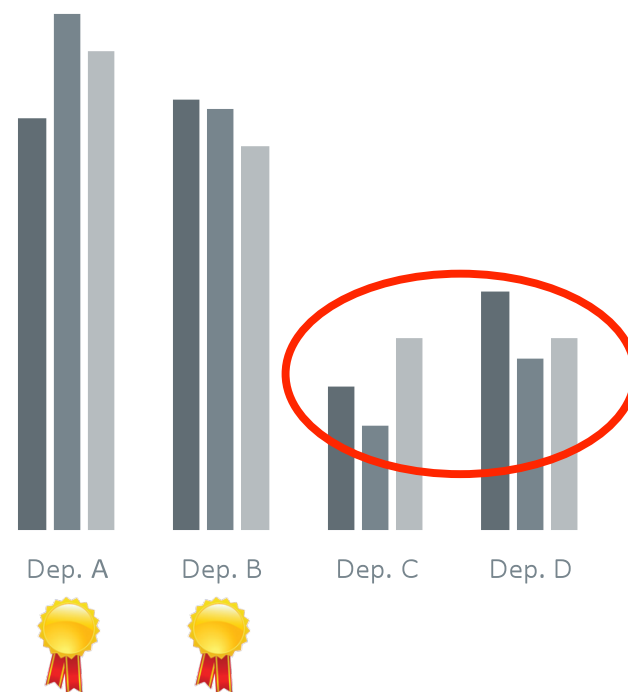
Case Examples

- To illustrate and provide preliminary proof-of-concept of the utilization of the principles, the authors derived two case examples of safety culture change efforts that have proven ineffective or undesirable
 - Narratives are fictional, but based on authors' experiences from safety culture-related work in various research or consultancy projects, or as industry practitioners
- Principles were utilized to understand and explain why the change efforts had failed in example cases and how it could have been avoided



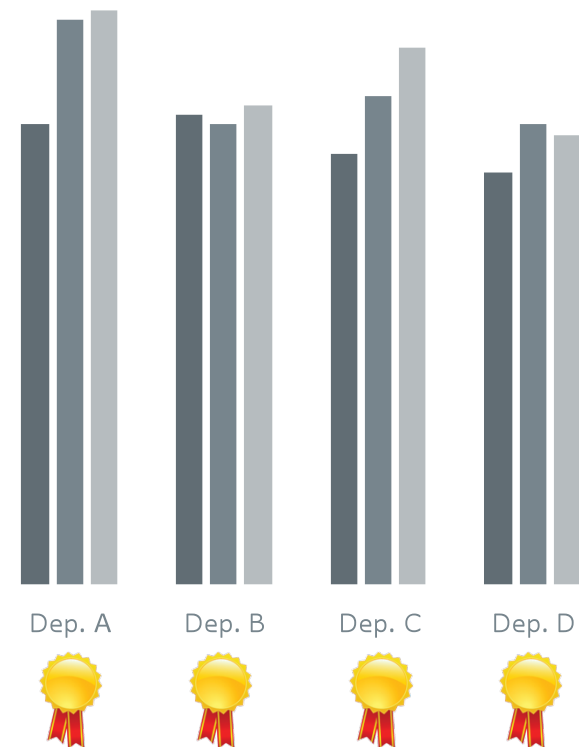
Case Example 2: Implementation of Corrective Actions

- Safety culture survey was conducted at a nuclear power company
- Some departments had low mean scores in questionnaire scales
- Top management required immediate actions to remedy the situation in low-scoring departments and awarded the departments with high scores



Case Example 2: Implementation of Corrective Actions

- Safety culture survey was conducted at a nuclear power company
- Some departments had low mean scores in questionnaire scales
- Top management required immediate actions to remedy the situation in low-scoring departments and awarded the departments with high scores
- In the next assessment, the mean values increased in the whole organization – consequently everyone was awarded





Principle: Select the system elements you want to change

- The management – through the selection of rewarding criteria – ended up selecting the behaviour of responding to a questionnaire as the element they wanted to change
- The scores changed, but was this really what they wanted?
 - The questionnaire is now likely to be unreliable for assessment
 - Potential underlying causes behind previous low scores may still remain
- The purpose of the change needs to be understood – the change should not be a knee-jerk reflex which aims at quick fixes
- It should be clear (at least):
 - What type of system element (behaviour, structures, or shared values and assumptions) and which characteristic of that element requires changing?
 - How will the change in that characteristic influence safety?



Principle: Identify the assumptions embedded within safety culture change tools

- Safety culture questionnaires are able to reach only certain aspects of organizational culture, there is an assumption that complementary data collection tools are used
- In the example case, it was thought that the mean scores readily represent the “state” of safety culture, resulting in their misuse
- Assumptions of organizational dynamics, nature of safety and tool functionality and use are embedded in the tools by their developers
- Does the end-user share these assumptions or acknowledge their existence?
 - If not, there is a risk of utilizing the tool in an unintended manner, potentially rendering the tool either ineffective or even detrimental



Conclusions

- The example cases illustrate how the principles can be useful in creating an informed, methodical strategy for safety culture
- In practice the principles could be used as a checklist and reminder for practitioners about the good practices of safety culture change
- Further development could include systematic and comprehensive literature review and longitudinal, empirical case studies for validation of the principles

Thank you!

Kaupo Viitanen
Research Scientist, M.A. (Psych)
Safety-critical Organizations
VTT Technical Research Centre of Finland Ltd
kaupo.viitanen@vtt.fi