The background of the slide is a blurred photograph of a road at dusk or dawn. A red traffic light is visible on the right side of the road, and the road surface is a reddish-brown color. The overall scene is out of focus, emphasizing the text in the foreground.

Human Factors at Level Crossings update 2015-06

UN-ECE Group of Experts on Safety at Level Crossings

Subgroup on Human factors (2f):

M. Cale - CogniTo

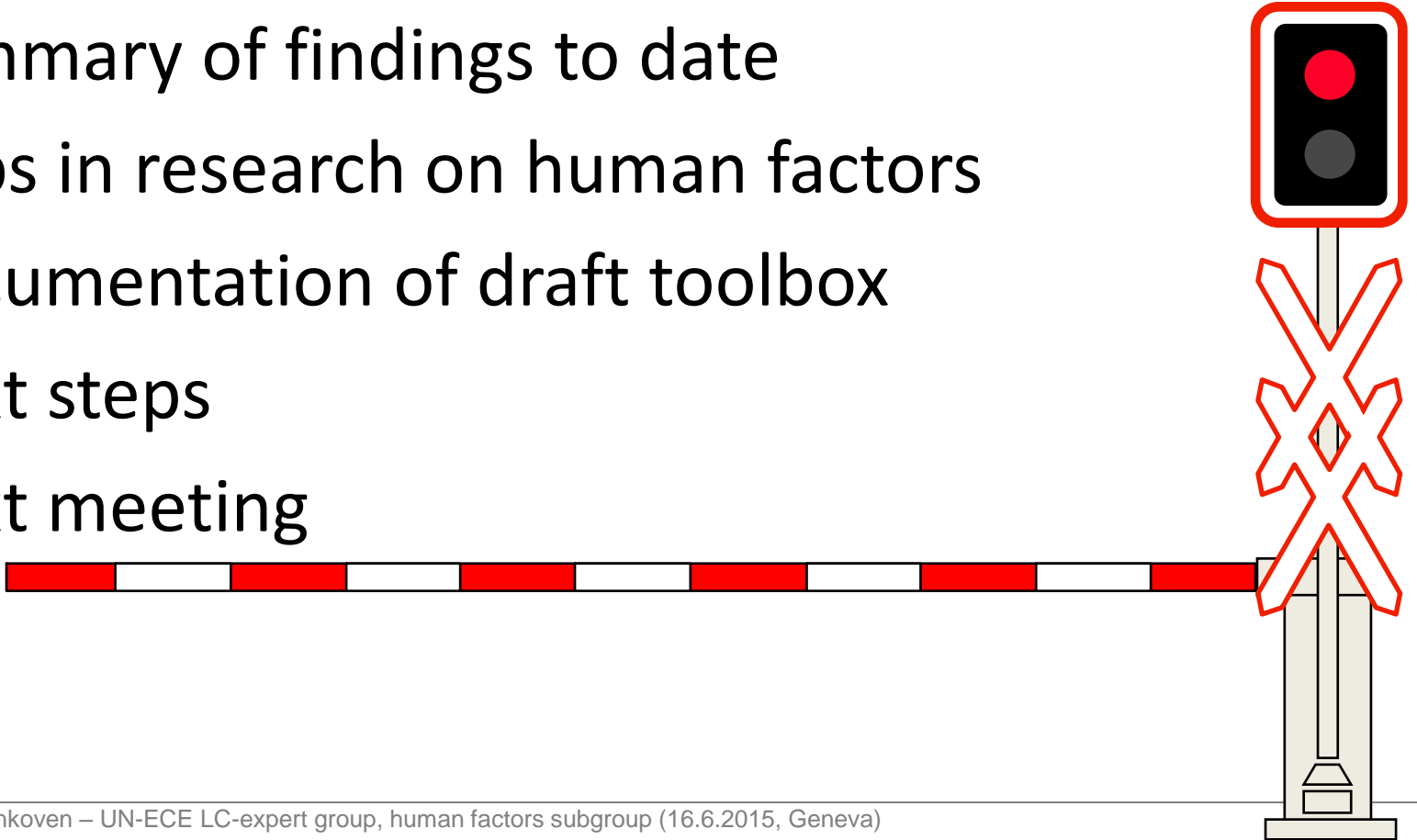
G. Dinhobl - ÖBB-Infrastruktur AG

J. Grippenkoven - German Aerospace Center e.V. (DLR)

Geneva, 16.6.2015

Content

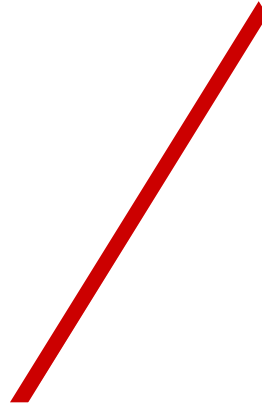
- Summary of findings to date
- Gaps in research on human factors
- Documentation of draft toolbox
- Next steps
- Next meeting



Remark to discussions yesterday

- important to distinguish – from the connection line...:

‘technology’ used at LC (layout / equipment of active and passive LC)

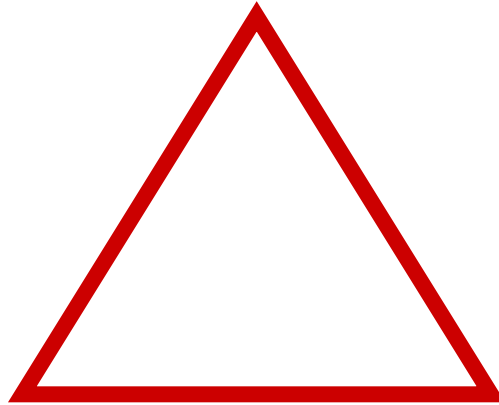


Intended behaviour of users

Remark to discussions yesterday

- important to distinguish – ...towards the triangle:

‘technology’ used at LC (layout / equipment of active and passive LC)



Intended behaviour of users

‘Real’ behaviour of users

Remark to discussions yesterday

- lesson learned – **pay attention / be careful** to make precise distinction(s):

‘technology’ used at LC (layout / equipment of active and passive LC)



Intended behaviour of users

‘Real’ behaviour of users

Summary of findings to date

- positive feedback about the importance of HF@LC (human factors at level crossings) from numerous countries
- databases / accident investigation reports addresses technical and legal issues
- none of the investigation techniques known to us take a serious look at human factor issues
- unfortunately, no offer of funding to test, refine and finalize the proposed toolbox
- but: contact was established to the head of Austrian Accident investigation body (VERSA) – feedback coming soon

Gaps in research on human factors

2 main areas identified

- systematic, validated and standardized **investigation toolbox on human factors** (→'ASAP') to enable in-detail analysis of real accident causes to develop tailored countermeasures for different kinds of level crossings
- appropriate (and finally standardized) evaluation **method to judge the effectiveness** of a given concept in relation to human factors / behaviour performance (→ see also recommendation of SG-2g for red light and speed cameras)

Documentation of draft toolbox

Further stage of toolbox 'ASAP' ('accident safety appraisal procedures') since last meeting:

- decision to separate toolbox in:
 - Level Crossing Accident (Analysis) LCA, 78 lines in 4 areas:
 - Accident information
 - LC condition
 - Local condition at time of accident
 - drivers
 - Human Factors Analysis HFA, 127 lines in 5 areas:
 - Concentration
 - Perception and perceivability
 - Cognition
 - Motivation
 - Performance

Next steps for ASAP-toolbox (draft)

- first testing with single data → detail improvement
- testing with set of data (multi-analysis) → final improvement
- recommendation for use analysis HF@LC by ... (ERA, UIC?)
- setup a single data/information collecting point and setup of a (virtual) center of excellence for multi-analysis on HF@LC

- include feedback of VERSA / AT

Next meeting

(turn around headline): “GE.1 request subgroup for:”

- elaborate a process model to become a usable toolbox for HF@LC-analysis (ASAP-toolbox)
- elaborate a recommendation on ‘how to use’ the proposed ASAP-toolbox
- elaborate recommendations for ‘the identification of the key causes and possible solutions to human factors contributing to unsafe conditions at level crossings’

Thank you for your attention

