

RETHINKING VISION ZERO – TOWARDS THE SAFETY-II PERSPECTIVE BY APPLYING HF IN SAFETY MANAGEMENT

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Background

Vision Zero (VZ) was originally formed as a prevention strategy for safe work without fatal or serious occupational diseases or workplace accidents. The Finnish Zero Accident Forum was established in 2003, to improve productivity and quality in industrial companies by reducing their accident numbers through sharing good practices, networking and committing to improving the safety level in their company. The aim was to give companies a clear message that accidents are preventable and that striving for this should be an essential part of business.

However, the origins of VZ stem from pragmatic needs and discussion rather than a solid theoretical basis. Some recent safety debates have criticized the aims and means of VZ, for example, the risk of hiding incident data while ‘targeting zero’ or targeting ‘no harm’ in situations in which this is impossible to achieve due to the variety of the work environments or the complexity and dynamicity of functional environments. It has also been argued that traditional safety thinking has focused on calculating risks or pointing out individual errors, which has in turn led to incorrect conclusions and corrective actions that are too narrow, as well as a lack of commitment among operative personnel in safety management.

The latest safety research has presented resilience and Safety I-II paradigms, emphasizing the difference between traditional and new thinking in safety. For some time already, human factors (HF) as a multi-scientific discipline using practical models, has aimed to support overall system performance, efficiency, and the safety and well-being of those working with the systems. These views have revealed a need to understand human variability and the limited resources behind safety cases and the facilitating ability of individuals and organizations to anticipate, cope, recover and learn from operations.

Methods

In this presentation, we aim to reframe VZ by taking human action as the core of safety improvement. We defined five basic foundations of VZ: anticipation, a participative approach, focus on the successes and factors that maintain safety, commitment at all organizational levels, and systemic, collaborative orientation. We present theoretical backgrounds and practical actions for each foundation. The real-life examples are from research and workplace development interventions that have applied HF programmes; in air traffic management, airport operations and railways. The efficiency of these interventions are evaluated through interviews, intervention material and defining indicators, to determine whether and how the interventions have changed safety management practices and conceptions of HF as a part of safety management.

Results and conclusions

We conclude that Vision Zero may be reframed by Safety-II and HF-focused perspectives, and that these two viewpoints are not contradictory if the rethinking of VZ is based on consciously redefining the conception of VZ, aligning with this conception, and ensuring that policies, procedures and practices are applied at all levels of organizations. The global VZ network could be utilized as a platform for further trials.

Keywords: human factors, safety management, Safety-II, Vision Zero, safety improvement