[Maritime Safety & Security I]

Application of Human Factors-based Risk Models to Support Accident Investigation

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PURPOSE: Accident investigation aims at identifying underlying conditions and root causes for accidents in order to understand how things went wrong and identify weaknesses in risk control systems. Commonly, accident investigations identify human error as a root cause of an accident which limits the safety learning as no further information of underlying conditions that contributed to the human failure event is provided. Therefore, the identification of contributing factors such as inadequate training and supervision, poor equipment design, leadership commitment, poor safety attitudes is essential to enhance safety of operations and prevent recurrence.

METHOD: The SAFEMODE project brings together key experts from both the aviation and maritime sectors to develop a novel Human Risk-Informed Design (HURID) Framework in order to identify, collect and assess human factors data. As part of the approach followed, human factors-based risk models have been developed. These models are barrier-based and allow the identification of human events and influencing factors that contributed to the failure of safety barriers. This work explores the application of risk models in accident investigation to support the identification of key contributors to the failure of barriers and risk, and the collection of additional information on factors that contributed to the human failure event.

FINDINGS: Recommendations on how human factors-based risk models can be utilised to support accident investigation as well as the benefits of applying such approach will be presented.

CONCLUSION: The collection and analysis of contributing factors data such as safety barriers that were missing or did not work as intended, poor practices, inadequate operating procedures will support the implementation of more robust risk control measures that will result in improved safety assurance, more effective and resilient operations and enhanced human performance.

Keywords: Risk Models, Human Factors, Accident Investigation