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2025

[Link to publication](#)

Total number of authors:
3

Proceedings of the 7th International Safety-II-In-Practice Workshop 2025

15th-16th of May 2025

Delft University of Technology,
Delft, the Netherlands

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Day 1

INVESTIGATING FLIGHT INFORMATION SERVICE WORK-AS-DONE FOR AI-BASED SERVICE DESIGN

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Keywords: Safety-II, work-as-done, resilience, flight information service, artificial intelligence

Introduction: AI is expected to play an increasingly prominent role in making aviation more efficient and optimise performance. From a Safety-II perspective, the work-as-done (WaD) of current operations needs to be understood in terms of how it aims to meet varying demands, goals and pressures it aims to meet, in order to inform the design of AI systems for joint human-AI activity. This study investigates what characterizes Flight Information Service (FIS) WaD as a case study, why it works well currently, and how this knowledge of everyday successful FIS may be transferred to an envisioned AI tool for FIS.

Methods: The idea of AI-FIS is that pilots in uncontrolled airspace obtain flight information from an AI-based service, instead of, as currently, an air traffic controller (ATCO). Questionnaires asked pilots (6) and ATCOs (30) what well-performed Flight Information Service means, and what AI-enabled FIS would need to encompass. In addition, a focus group was held using the same questions, with three experienced ATCOs with private pilot experience. Both methods thus used a very light-weight version of resilient performance assessment [e.g., 1] on an early prototype description of the AI-FIS application.

Results and Discussion: Data analysis using thematic coding resulted in eight themes, describing characteristics of good Flight Information Service and their transfer to future AI-FIS: 1) Adapting to context; 2) Strategies of work; 3) Understanding user needs; 4) Uncertainty management; 5) Communication /coordination; 6) System interactions; 7) Cognitive work; and 8) Information management. Good Flight Information Service is highly dependent on adapting to new circumstances and sudden changes in, e.g., airspace allocation, weather conditions, and traffic. ATCO goals to always provide the highest level of service, proactively and timely, are balanced with other demands.

Conclusion: Work-as-done characteristics of current Flight Information Service have been investigated, which put a demanding set of requirements on future AI-based FIS. The study indicates that its light method is suitable for surfacing resilient performance-related aspects of envisioned AI-based operations.

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