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Experience Sharing to Enhance Safety

WS03-2018



Automation, Digitalisation and Cyber – new challenges for Human Factors in complex organisations

"When machine world meets the human world in Air Traffic Management"

27-28 September 2018

Mtg. room 423 on Level 4 in Sir Alwyn Williams Building

<https://www.gla.ac.uk/schools/computing/contact/>

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AGENDA

27th September (Day 1) – Mtg. room 423 on Level 4 in Sir Alwyn Williams Building

09.00 Welcome & Opening of the Workshop

Head of Computing Science at Glasgow University - Prof Chris Johnson, SHP-SG co-chairs Tony Licu - Head of EUROCONTROL NOM/SAF & Jörg Leonhardt - Head of Human Factor in Safety Management, DFS

09.15 How do the new technology affect ATM and HF, latest Cyber developments

Head of Head of Computing Science at Glasgow University - Prof Chris Johnson

In this presentation prof Johnson will provide an overview of recent cyber-attacks that have been focussed on National Critical Infrastructures. He will explain the implications for the aviation supply chain, especially in terms of more recent work on the use of machine learning in both attack and defence. Throughout all of this I will stress the importance of human factors both as a mitigation against potential attacks and as a source of continuing vulnerability.

10.45 Coffee Break

11.15 ADS-B and ADS-C communication in the light of digitalisation

Prof. Octavian Pleter – Dean of Airspace Engineering Faculty – University Politehnica of Bucharest & Prof Cristian Constantinescu - Airspace Engineering Faculty – University Politehnica of Bucharest

Civil aviation was one the first applications of digital communications, traditionally not encrypting any data. This has had its own reasons, related to safety. Even the most recent advances, ADS-B and ADS-C technologies are completely unsecure. Audience is invited to confront the challenges of these new technologies and to imagine solutions. Future De-conflicted 4D Trajectory Based Operations and System Wide Information Management paradigms are game changers from both operational and safety/security perspective. The tradition of not securing civil aviation digital communications should be abandoned.

12.30 Lunch Break

13.45 Addressing Airport technologies and the Cyber Safety Maturity

Matt Shreeve – HELIOS

Insecure systems cannot be assumed to be safe and so cyber-informed safety is a key emerging field. Maturity models are often used as a repeatable method to identify priority areas to address and to report to senior management. Drawing on previous work for SESAR and EUROCONTROL in this workshop session Matt Shreeve will introduce a new framework and questions for cyber safety maturity developed for piloting in the Network Manager. Participants will be expected to reflect on the use of the maturity model in their own organisations and provide initial feedback on wider applicability and usefulness.

15.00 Coffee Break

15.30 Visit of the Glasgow University Cyber Lab

Marco Cook and Charles Rutherford - Research Associates, University of Glasgow, School of Computing Science

17.00 End of day 1



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28th September (Day 2) – Mtg. room 423 on Level 4 in Sir Alwyn Williams Building

09.00 **Did we learn from MH370? Does Space Based ADS/B prevent a new MH370? Is there anything else that could be done?**

Prof. Octavian Pleter – Dean of Airspace Engineering Faculty – University Politehnica of Bucharest & Prof Cristian Constantinescu - Airspace Engineering Faculty – University Politehnica of Bucharest

In this presentation, the MH370 case will be analysed to details and all scenarios will be checked against the capabilities of the current and future Space Based ADS/B. Conclusions are surprising. Although the whole effort for satellite surveillance of aircraft was triggered by MH370, such an occurrence would be still left undetected. An aircraft with ADS/B transponders switched off will be invisible by Satellite Surveillance either. The audience is challenged to explore the possible counter measures to unlawful acts from inside the cockpit.

10.00 Ergonomics and Design aspects of ATM

Jörg Leonhardt - Head of Human Factor in Safety Management, DFS, Andre Perrot – HF Expert, DFS and Nils Tavares-Schader – HF Expert, DFS

HF is not something that can be added to a system design as an after-thought. Similarly, if user friendly, ergonomics, support for recovery from failure, adaptation to human limitation, support to human performance variability has not been 'built into' the system, as a 'property' of the system, then the designed system cannot be expected to comply with HF standards or HF best practices. HF in design projects can be seen as an extra task, or else human performance can be seen as an 'emergent property' that comes from good design processes. In practice, especially given increasing regulatory attention and requirements for assessment, both are needed. The question for design projects, is therefore one of determining what design practices and HF considerations are most beneficial to assuring a 'safe and efficient design'.

10.45 Coffee Break

11.15 Workshop on Ergonomics and Design aspects in ATM Design

SHP-SG co-chairs Tony Licu - Head of EUROCONTROL NOM/SAF, Jörg Leonhardt - Head of Human Factor in Safety Management, DFS, Nils Tavares-Schader – HF Expert, DFS and Andre Perrot – HF Expert, DFS

Following the introduction of the issues in previous session, a hands on interactive session will follow to explore the ergonomics and design aspect in Air Traffic Management with the participants.

12.30 Summary and What's next – moderated round table

13.00 Wrap up and Closure of the Event End of day 2 and of the Workshop



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