

21 - Decision-making models: FOR-DEC and beyond

Gunnar Steinhardt*¹, Gesine Hofinger², Solveig Proske³ and Henning Soll⁴

¹Luxair Luxembourg Airlines, ²Team HF, ³Lufthansa, ⁴DLR

Abstract

Research about decision making processes show that people tend to decide on an ad-hoc basis, they are led by their pre-assumptions and preferences. In emergencies, this tendency will be stronger due to stress and perceived time-pressure. Many case studies show that unstructured decision-making processes in teams are contributing factors for accidents. In aviation, the need for structured decision-making had been accepted early and resulted in many procedures that take away the pressure of active decision-making from the crew for most critical situations. For those situations where there are no pre-configured solutions, airlines have developed several decision models. In the presentation, we give an overview and comparative analysis on those models that have been published or that we could gather information on. Despite their heterogeneity the presented models all include some key steps, which we classify by means of phases of problem solving.

As a next step, we will discuss FOR-DEC, the best-known model in Germany. It was developed by Lufthansa and DLR. Today, it is used not only in aviation, but also in domains as nuclear power stations or emergency medicine. Some findings from a study on pilots' current application experiences are reported. Pilots find the model useful for structured decision-making in complex situations when there is enough time for the application in the team process. Our study also shows that FOR-DEC should not be used in situations where there are clear procedures or extreme time-pressure. Also, some extensions to FOR-DEC could be useful: for example, the integration of expert knowledge into the decision process and the explicit integration of the team in the decision-making process.

We will present possible extensions to FOR-DEC that aim at the integration of these factors. First experiences with their use in CRM training are reported.

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Contact information

*Email: gunnar.steinhardt@luxairgroup.lu