01/2017 - present — Toulouse, France

Department of Complex Systems Engineering (ISAE-SUPAERO)

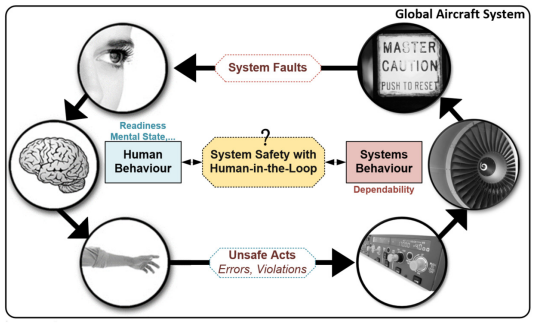
Research Project

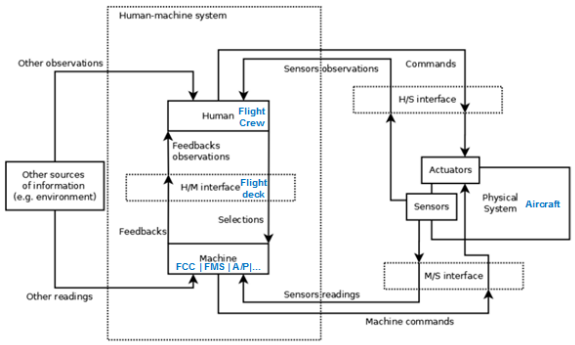
System Engineering Approach for the Safety Analysis of a Complex System including Human Factors

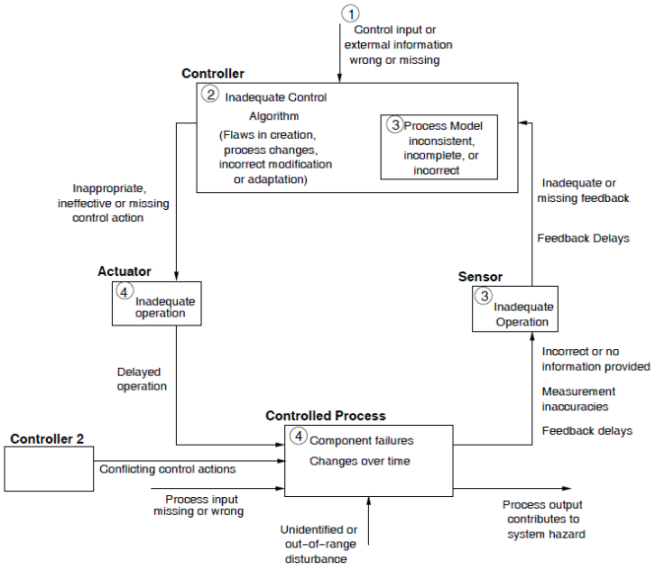
GOAL	Develop a methodology to assess the overall dependability of an aircraft system with the human-in-the-loop

TECH SKILLS	• *Safety engineering* - System-Theoretic Process Analysis (STPA method) • *Task Modeling* - Human-centered Assessment and Modeling to Support Task Engineering for Resilient Systems (HAMSTERS) • *Discrete Event Modeling* - Petri Nets • *Formal method for system-level modelling and analysis* - EVENT-B

Identify unsafe control actions in aircraft procedures (STPA)







STPA Control Loop

Model pilot tasks in nominal and abnormal situations (HAMSTERS)

Task type	Icons in HAMSTERS task model
Abstract task	Abstract task
System task	System task
User task	User task, Perceptive task, Cognitive task, Motor task
Interactive task	Interactive input task, Interactive output task, Interactive input output task

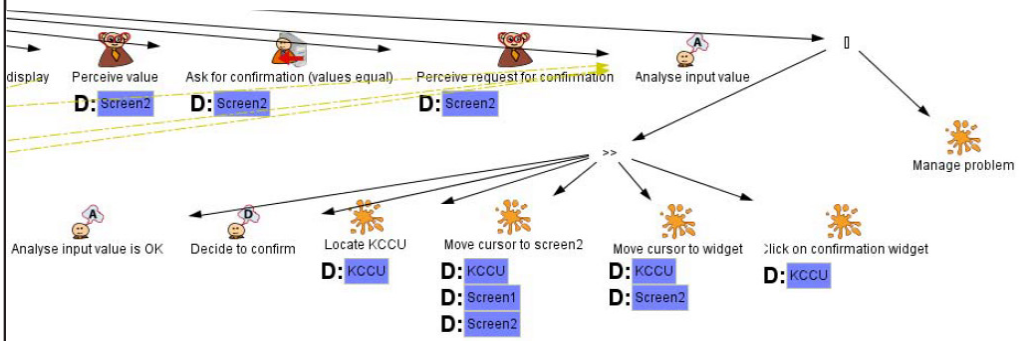


Figure 9: Detailed set of tasks corresponding to the monitoring activity of the pilot