

Flight deck human-machine interface

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The flight deck human-machine interaction aims at reducing the chances of errors. The main point of concern is the viability of the respective individuals to use new technologies effectively. For example, the voice recognition system serves as an extra pilot in the cockpit. However, the pilot may be distracted while trying to remember what a certain command means. The Federal Aviation Administration (FAA) considers new technologies as a mandate rather than a choice (Croft, 2011). The revolution in flight deck technology is laden with benefits and potential hazards that bring agreement and conflict between avionics manufacturers and the federal authorities. The benefits of the human-machine interactions enhance tactical operations towards the “no accident policy” from the FAA (Croft, 2011). The voice recognition technology ensures that the pilot “does not have to take hands off the control wheel.” In addition, new technologies aimed at reducing the clutter in the Primary Flight Display that displays too much information. Such unnecessary information can be confusing to the pilot. Avionics manufacturers assure the FAA that there is the prototyping of a flight path marker, a technology that ensures only the information relevant to a specific phase of flight is displayed. Players in the avionics industry are certain that new technologies that enhance flight deck human-machine interaction are geared towards implementing the “no accident policy” by enhancing compatibility between the pilots and the cockpit technology.

There exist potential hazards to the flight deck technologies that aim to enhance human-machine interaction. Avionics manufacturers raise issues regarding the manner in which humans troubleshoot and maintain the systems (Noyes, 2012). The human-machine interaction is limited to persistent design errors and safety-critical applications for a particular

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system. In addition, it may be difficult to distinguish the roles of the hardware and software system from those of the human operator. Imbalances in assigning roles would affect human cognition and behavior. Potential hazards due to the imbalance include data overload, mode errors, and the keyhole effect (inefficiencies in both the technologies and the humans) (Noyes, 2012).