

Will AI Replace Commercial Airline Pilots? What Flight Professionals Really Think About Intelligent Technologies in the Cockpit

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Will AI replace commercial airline pilots? For now, the regulator's answer is no. In June 2025, the European Union Aviation Safety Agency (EASA) concluded that neither extended Minimum Crew Operations (eMCO) nor Single Pilot Operations (SPO) had yet demonstrated a level of safety equivalent to conventional two-pilot operations: with the technology currently available, the pilot cannot be replaced. How pilots themselves perceive these technologies, however, remains largely unexplored. And these systems reach deep into the psychology of flying: into professional identity, trust, and the sense of being in control.

In this contribution, Giacomo Belloni, who has spent years researching advanced and intelligent technologies and their relationship with commercial airline pilots, presents three empirical studies, conducted with Petru Lucian Cursu (Open Universiteit and Babeş-Bolyai University) on large international samples of active commercial pilots.

The first study, "Anthropomorphic AI: Sociopathic AI Features as Predictors of Career Opportunities and Threats Perceived by Pilots in Commercial Aviation", published in *The International Journal of Aerospace Psychology*, surveyed commercial pilots and drew on theories of anthropomorphism and on the Threat Rigidity Model. It introduces a new scale capturing the sociopathic features pilots ascribe to AI (its perceived lack of empathy, conscience, and remorse) and tests how these attributions relate to the career threats and opportunities pilots associate with AI, and to its expected performance benefits.

The second study, "Pilots and Advanced/Intelligent Technologies in Light of EASA's 2025 Reduced-Crew Operations Evaluation", (under review) starts from the regulatory assessment itself. A vignette-based survey, framed by the Technology Readiness model, examined pilots' willingness to rely on intelligent systems under normal, adverse, and emergency conditions, and asked whether awareness of the Agency's conclusions on reduced-crew operations changes those judgements.

The third study, "The Autonomy Penalty: Understanding Commercial Pilots' Acceptance of Intelligent Technologies in the Cockpit", under review at the same journal, combines data from the EASA Ethics for AI in Aviation survey with a vignette experiment in

which the degree of AI autonomy was manipulated. The aim was to establish whether pilots' evaluations reflect their general views of intelligent technologies or a more specific reluctance to transfer operational authority to autonomous systems.

Taken together, the studies ask when pilots accept, resist, or rely on advanced and intelligent technologies in safety-critical operations. The findings will be presented and discussed during the session, along with their implications for system design, training, and regulation, and a larger question: whether, and how, AI will change the future of commercial aviation and the role of those who fly its aircraft.