

Requirements for Single Pilot Operations in Commercial Aviation: A First High-Level Cognitive Function Analysis

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Abstract Aeronautical engineering never stopped decreasing the number of technical crewmembers in commercial aircraft since the 1950s. Today, a new challenge has to be taken: single pilot operations (SPO). SPO consist of flying a commercial aircraft with only one technical crewmember in the cockpit, assisted by advanced onboard systems and ground operators providing flying support services. This next move is motivated by cost reduction, and must satisfy the same or better level of safety currently guaranteed with two-crewmen cockpit. This is a human-centered design (HCD) problem where decision-makers have to take risks. This paper presents an approach to risk taking in systems engineering. This approach is illustrated by the presentation of the difficult problem of SPO HCD, and the underlying function allocation problem.

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