

Toward Resilient Airline Planning: From Fleet Planning to Operations Control

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Abstract. Airlines make thousands of interconnected decisions across different planning horizons, ranging from long-term fleet and network planning to real-time operational control. While each planning process has traditionally been optimized in isolation, increasing operational complexity and uncertainty call for a more integrated perspective on resilience. Drawing on insights from an ongoing research collaboration, initiated through the Kickstart.AI program, between Air France-KLM, Utrecht University, and the University of Twente, this presentation places a series of research projects within the broader context of the airline planning process. Through practical case studies, it highlights three recurring themes: accounting for interdependencies across planning processes, explicitly incorporating uncertainty into planning models, and developing customized optimization methods tailored to the unique characteristics of airline planning.