Boeing Flight Decks Deliver Superior Value to Airlines

Boeing flight deck designs provide operational flexibility and cost-effective training options that translate into superior value for airlines worldwide.

The Boeing philosophy is based on the belief that pilots, not computers, should have final authority over an airplane, and that technology should help pilots, not substitute for them.

"We've engineered our flight decks to put the full capabilities of the airplane under the pilot's command. We're convinced this brings a wide range of benefits including greater safety," said Capt. Frank Santoni, 777 chief pilot - Boeing Commercial Airplanes Group. "Simplicity and redundancy drive our designs. Automation is part of the picture, too, but only when it enhances efficiency and doesn't hinder the crew from interacting with each other and the airplane."

Santoni, who presented the company's perspective at the Farnborough Air Show today, pointed out that history and human factors research support the Boeing approach.

Today, 91 percent of the world's commercial jetliners are flown from standard flight decks using the familiar wheel-and-column controller. Moreover, civil turboprop airplanes, most military transports and the vast majority of general aviation airplanes are equipped with this nearly universal standard. Current industry assessments indicate the number of airplanes equipped with sidestick controllers will lag behind the number of airplanes with standard flight decks well into the future, even at the most optimistic sidestick introduction rate.

Standard controls also are used on 100 percent of the airplanes currently in service with regional airlines - the primary source of pilots for major commercial carriers, which means airlines can tap into a huge pool of pilots who share common skills and basic flight deck understanding. Nine out of 10 pilots are trained on standard controls.

Human factors research consistently shows that people perform complicated tasks better when they receive multisensory cues, especially in stressful conditions. Boeing flight decks use back-driven throttles, interlinked flight controls and other visual and tactile feedback to ensure pilots know how the airplane is behaving at all times.

"The controls on Boeing flight decks respond unambiguously to every pilot or autopilot command - there's no question how our planes are responding," Santoni said. "Our designs give pilots natural, intuitive cues, and because the pilot and copilot can see and feel what the other is commanding, they can work together as a team to better manage the flight deck under all conditions."

Santoni noted that the company's design philosophy readily accepts new technologies and upgrades. The company continues to evolve its flight decks, and currently is preparing to add new features such as vertical situation displays for greater terrain awareness, and a global navigation satellite system for landing. All of these new features will bring added safety, operational and financial benefit to airline customers.

One of the greatest advantages of flight deck commonality, however, is the potential for operating multiple airplane models from a single pool of pilots, often called mixed fleet flying. In fact, most airlines using mixed fleet flying use Boeing airplanes - three times more often than with other models.

"Pilots who have experience flying standard flight decks can transfer those skills to Boeing airplanes, which gives them a head start on training," Santoni said. "Our intuitive design approach makes the transition to and among Boeing airplanes easier, which reduces costly training time and keeps pilots where they should be - earning revenue for their companies."

Training pilots to fly a Boeing 777, for example, costs 18 to 32 percent less than training pilots to fly competitor airplanes in the same class, depending on regulatory requirements. For airlines, this means potential savings of $180,000 to $315,000 per airplane. The same training would take 22 days for a 777, versus 26-29 days in a comparable non-Boeing model.

Shortened Transition and Rating (STAR) courses, developed by FlightSafety Boeing Training International, offer even more opportunities for cost savings. STAR allows pilots with different Boeing experience to train together, giving both the airlines and their pilots more flexibility. Courses developed for non-Boeing models require pilots with identical backgrounds and career paths to train together, which leaves airlines with two choices: either constrain their pilots from progressing professionally, or send crews through more costly full-transition training.

"Airlines want to maximize the investment they make in airplanes and their people, especially as increased competition forces them to operate more efficiently than ever before," Santoni said. "Boeing standard flight decks add considerable value to our customers' operations. We believe they will endure as the industry standard because the benefits are clear, and more importantly for our customers, they are available now."

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