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# Flying without a pilot in the cockpit - the industry and the market are accelerating the revolution in aviation



A small research project funded by the European Union with a one-year budget of just €1 million could accelerate the aviation industry's revolution and pave the way for improvements worth tens of billions of euros.

The European regulator of civil air traffic (The European Union Aviation Safety Agency - EASA), with the Netherlands Aerospace Centre, has until August next year to answer the question: in which phases of the flight is it sufficient for there to be only one pilot in the cockpit of the plane?

The study should answer several critical questions regarding pilot workload, the possibility of making mistakes, pilot incapacitation, fatigue, sleepiness, and lack of concentration.

If the study finds that it is safe for one pilot to be in the cockpit during certain flight phases, particularly during lengthy cruises on long-haul flights, it would be a significant incentive for the aviation industry to push the idea of one pilot even harder before complete automation.

This research is part of a compromise of the EU aviation regulator with aircraft manufacturers when, half a year ago, it rejected their request to allow planes to be operated by only one pilot instead of 2 in some phases of flight (cruising) by 2030.

EASA rejected the request of Airbus and Dassault at the time, raising the possibility that companies should postpone restricting limiting flying to one pilot in certain parts of flights until 2027.

## Pressure from manufacturers and carriers

Regulators have consistently resisted calls by carriers and aircraft manufacturers to permit crew reductions.

The industry demands follow the technological evolution of air travel, which over the past

decades has reduced the number of people in a cockpit of a passenger plane from 5 in the 1950s (pilot, a co-pilot, a flight engineer, a navigator and a radio operator) to 2, which is today's standard.

The rapid development of technology gives manufacturers the right to require only one pilot at the controls of an aircraft, as most, if not all, operations during flights are automated and controlled by machines.

At the end of 2019, Airbus performed as many as 8 test flights with its A350-1000 without any participation of a pilot, who only supervised the fully automated take-off, one of the riskiest flight phases, which went flawlessly.

The persistent lack of pilots in all significant markets, which has no chance of being remedied in the near future, is the third and maybe most potent pressure point on the business.

## A solution to the shortage of pilots on the market

The industry is offering advanced technology as part of the solution to the massive pilot shortage problem. However, the caution of regulators, coupled with strong public campaigns against the automation of aircraft controls, is still postponing change in the long term.

The significant market growth after the COVID-19 pandemic and the projections of its expansion indicate that the global shortage of pilots at the end of the decade could be as high as 300,000.

In the US, the world's largest regional market, the gap between supply and demand for pilots will be as much as 15% by 2032, according to consulting company Oliver Wyman.

Regulators will need to alter some of the existing standards, such as addressing retirement more forcefully, but also high expenses of pilot training, which may reach

\$100,000, if they wish to fend off more pressure from manufacturers and carriers to incorporate automation.

## Pilots are the biggest opponents of automation

Resistance to further flying automation comes from the industry most threatened by this transition - the pilots.

They made an appeal to maintain the standard with 2 experienced pilots in the cockpit as a safety minimum that must not be breached.

"It's a commercially-driven initiative with enormous risks for passengers, for pilots, and for cabin crew", is how Otjan de Bruijn, a captain with Dutch carrier KLM and president of the European Cockpit Association, a grouping of pilots unions, described flying automation.

One of the most vocal activists against emptying the cockpit is Chesley "Sully" Sullenberger, the legendary US Airways pilot who, with his co-pilot, safely landed an Airbus A320 on the surface of the Hudson River in New York City in 2009, saving 155 passengers.

With colleagues from the largest pilot associations in the US and the world, he launched a campaign for "preventing airlines and manufacturers from pushing ahead with plans to remove pilots from the flight deck, a profit-driven scheme that poses a significant safety risk".

They often refer to surveys among passengers, which still give very convincing percentages of keeping both pilots in the cockpit.

In some of them (Ipsos, 2018), as many as 80% said that the joint work of 2 pilots is the safest, even though in some other studies, the percentage of those "scared" decreases if the tickets were cheaper and if it trusted the companies.

## Crew costs are a strong motivation for automation

Even though there will be no change in standards regarding "Single Pilot Operations" (SPO) in the next few years, the industry is already well on its way, and travellers should be psychologically preparing for significant changes.

European aircraft manufacturers, including the regulator EASA, are leading this wave and influencing other markets, above all the US and the local regulator the FAA, which will become more visible in the coming years.

Even though the supporters of resistance and solidarity among pilots talk about relatively low crew costs in the total flight costs (10-15%), these costs, apart from being higher on short lines (up to 35%), are around \$60 billion per year globally.

That is already a significant incentive for aircraft manufacturers and carriers to invest in and prepare for pilot cuts, first by reducing to one pilot in the cockpit during long-haul cruises and eventually by fully automating flights.

Just as self-driving cars were the subject of resistance until just a few years ago but became part of the traffic, self-flying planes are on the sure path to becoming everyday occurrences.

"The question is not if but when self-flying commercial planes become a reality. Autonomy is going to come to all of the airplanes eventually", said Boeing CEO Dave Calhoun.