Novel design and luggage solutions to cut air travel times

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Credit: Anugrah Lohiya from Pexels

Shrinkable aircraft seats and door-to-door baggage delivery will help create seamless passenger flow, thanks to an EU-backed initiative.

With the anticipated increase in demand for commercial flights in Europe, airports, governments and airlines are increasingly focusing on improving the processes involved in air travel. To address this, experts

backed by the EU-funded PASSME project have investigated critical bottlenecks at airports. They have also developed innovative concepts, methods and applications to reduce unwanted waiting times at airports.

The PASSME project brought together researchers, designers and communications experts who have worked closely with Amsterdam Schiphol and Hamburg airports, as well as a private airline company. They analysed various elements affecting people's airport experience. These include luggage, security, mobility for those with disabilities and young children, boarding and overall passenger flow.

The researchers found that airport security checks and boarding aircraft were among the major factors impacting boarding times. They also found that luggage flow of both checked-in and carry-on bags can increase the unwanted time spent at an airport by 30 minutes. To tackle this issue, the researchers focused on creating a system where passengers and their baggage travel separately. According to their findings, the sooner a passenger is separated from his or her luggage, the better, in terms of travel time and experience.

No check-in bag, no hassle

The already existing door-to-door delivery services take luggage directly from passengers and return it to them at their destination. The researchers summarised the benefits of this system on the project website: "No check-in bag to carry, no check in or pick up. Less to worry about and you can check the location of your bag with your smartphone." The development of a real-time system for managing luggage flows is one of the four breakthroughs set out by PASSME.

Together with the primary objective of PASSME (Personalised Airport Systems for Seamless Mobility and Experience) to reduce door-to-door air travel time by one hour, other solutions target making the passenger

journey less stressful and more enjoyable. These focus on: designing a passenger forecast system to manage the flow of people through the airport; improving aircraft and airport interiors; and producing a personalised device and smartphone app to provide passengers with key airport information.

The project also developed an innovative mechanism where the seats of an economy row could be pushed together temporarily during boarding and disembarking. With such an adjustable seating system, more space is created along the aisle to reduce congestion. The PASSME innovative aircraft seat then reverts to its original position after boarding. Preliminary testing and simulations results show that this could shave 5 minutes off aircraft turnaround time for a 737-800 all-economy plane carrying 180 passengers.

Passenger-centric airports

Another aspect of the project that ended in May 2018 was the PASSME experience lounge. This was developed at Hamburg Airport. As the project website explains, the lounge uses a relaxing design concept, incorporating round and soft shapes, colours and materials. It includes charging points and a variety of seating options to accommodate passengers such as business people, families and groups. Video mapping and wall projections help to create an immersive environment for the passenger with images like aerial footage of Hamburg. The projections also include directions for boarding and other useful information to help passengers prepare for their journey.

More information: PASSME project website: passme.eu/

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