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What's missing from this new airport? An air traffic control tower

Maureen O'Hare, CNN • Updated 24th October 2019

Scandinavian Mountains Airport



(CNN) — Standing tall over pretty much every airport in the world, a reassuring presence reminding us that planes are being guided safely along set paths, is the air traffic control tower.

But not at Sweden's new Scandinavian Mountains Airport.

It's one of the first airports in the world to pioneer new remote air traffic control technology, with the operators on site but in a low-rise building some 300 kilometers (186 miles) away.

Designed to improve safety and cut costs, it's changing both the architecture and the operations of small airports around the world.

"The idea has been around for a while," says R. John Hansman, professor of aeronautics and astronautics at MIT.

Swedish defence company Saab has been trialling remote air traffic control for around a decade, with testing taking place everywhere from Ireland to the US to Australia.

Better surveillance

At Scandinavian Mountains Airport, multiple cameras and sensors around the airfields and its immediate surroundings will relay data to a control center at Sundsvall in central Sweden.

"From a tech standpoint we have better surveillance," explains Hansman.

High-definition screens will give the operators 360-degree views, but condensed to a 225-degree arc, meaning this virtual window can in some ways offer a more comprehensive overview than a traditional tower.

Augmented reality allows the operators to see identifying flight and radar information overlaid over the live video feed, while the external sounds of the airport proper are played over speakers to its remote control center.

Another advantage of the remote technology is that vision is improved at night and in adverse conditions, and operators can also zoom in and out with ease.



Scandinavian Mountains Airport will open in December 2019. (Courtesy Scandinavian Mountains Airport)

"Virtual towers in principle work like any person who works remotely using technology, whether it is education, software, meetings and so on," says David Gillen, a professor at the University of British Columbia.

"We learned a long time ago you do not have to be 'in the office' all the time -- if surgeons can perform an operation via video, surely we can inform an aircraft what it should do for a safe landing or departure."

The terminal at Scandinavian Mountains Airport serves Scandinavia's largest alpine ski area and is designed to handle four flights simultaneously, from the airlines SAS and Braathens Regional.

When it opens on December 22, 2019, it'll be a gateway for visitors to the ski resorts at Salen in Sweden and Trysil in Norway.

Around the world

The center at Sundsvall is already looking after flights from nearby Sundsvall-Timra Airport, Örnsköldsvik in northern Sweden and -- as of April 2019 -- Linköping in the south.

The UK's first all-digital tower opened at Cranfield University airfield in Bedfordshire in December 2018.

As part of its \$650 million redevelopment plan, London City Airport -- which handles more than 4.5 million passengers a year -- will trial a new digital air traffic control tower, a global first for an airport of its size, ahead of it being introduced in 2020.

"London City will be the busiest in the world to adopt this technology," Paul Beauchamp, a spokesperson for NATS, the UK's national air traffic service, told CNN in 2017.

"The controller remains at the heart of the operation ... doing what they currently do, but they'll be doing it with a whole bunch of technology tools to do it even better."

The future of travel



Scandinavian Mountains Airport - Where's the tower? More airports will look like Scandinavian Mountains Airport in the future. (Courtesy Scandinavian Mountains Airport)

"Virtual towers are coming to the US as part of the NextGen modernization program," says Gillen. "They are in place in Scandinavia due to cost, the number of small remote airports and low traffic volumes -- this is not a technology for LaGuardia, O'Hare or Heathrow! It allows a single team to operate a number of remote airports and, in principle, could optimize an airport system."

While the idea of operators not being on site may spook some, there are backup systems in place and -- in the event of a disaster or emergency which could shut down a traditional on-site tower -- it may actually be beneficial to have operators at a safe remove.

"Even today, busy airports will have approach and departure control that are not located on the airfield but in low-rise buildings elsewhere," says Gillen. "They operate using radar and other sensitive information transfer devices. The move to virtual towers is a relatively small step technically and operationally."

Gillen predicts remote air traffic control is going to become more common, especially if we switch to small aircraft -- such as VTOL (Vertical Take Off and Landing) jets -- which have the flexibility to land in multiple locations, such as regional airfields.

Air traffic control towers, those mighty symbols of aviation dominating airports around the world, might one day disappear from view.