

RTC in Germany: first international airport to be operational soon

Klaus-Dieter Scheurle, CEO, DFS Deutsche Flugsicherung, explains how and why DFS chose to implement digital tower technology.



Credit: DFS Deutsche Flugsicherung GmbH

Remote tower controls will become reality in Germany in late 2018. The tower at Saarbrücken International Airport will soon be unstaffed. Air traffic controllers will handle traffic from the Remote Tower Centre in Leipzig, over 400 kilometres away.

With around 15,300 aircraft movements per year, Saarbrücken will be by far the largest airport in the world to be controlled remotely in regular operations. DFS chose Saarbrücken to start with because of the manageable number of flight movements and because the old tower cab had to be replaced soon, which would have cost many millions of euros. Instead of replacing it, we decided on remote tower control (RTC).

The complete project comprises the airports of Saarbrücken, Erfurt and Dresden. Erfurt, which has a similar number of aircraft movements as Saarbrücken, will be the second airport to be added to the Remote Tower Centre. This will take place approximately one year after Saarbrücken. Dresden has more than twice as many flights as the other two airports – in 2017 there were 36,480 movements – and operates a lot of mixed traffic. It is planned to be the third airport to be remotely operated.

An extension of the project to other single-runway airports may be conceivable in the future. These are some of the smaller airports among the 16 international airports controlled by DFS, which have a similar layout.

A great view

Our system is characterised by the fact that the working position in the Remote Tower Centre has been developed according to the needs of out-of-the-window view. On the other hand, we did not change the operational concept and procedures so our customers will not see any difference at RTC-operated airports.



Credit: DFS Deutsche Flugsicherung GmbH

Saarbrücken traffic will be handled by controllers in Leipzig.

The RTC controllers will work with the advanced ATS systems, developed by DFS, for situational awareness (radar), flight data processing, weather and information display and others. Completely new is the Frequentis system, which reproduces the out-of-the-window view; instead of looking through the tower window, the controller looks at a panoramic view on five screens. Whereas in the tower the controller turns his head to right or left to get an overview, in the RTC the controller pans the camera with a mouse in the desired direction. The controller can switch the image between normal (full HD) and infrared vision.

The image is reproduced by a 360-degree colour video camera system and a 360-degree infrared camera. The automatic object recognition and tracking in the panorama display is very accurate. The system provides the controllers with additional optical information, which is superior to the conventional look-out of the tower.

In addition, there are two pan-tilt-zoom cameras. The zoom function replaces the previous option of using binoculars. It provides thirty times magnification in colour and twenty-four times magnification in infrared. The entire camera system is heated and equipped with an automatic cleaning system, so the cameras will not fog up, get dirty or iced up.

For data transmission, we use redundant, exclusive data networks that we had already. So we only had to expand the bandwidth.

The benefits of RTC

RTC increases efficiency and reduces costs – decisive factors in air traffic management. Our remote tower controllers will be cross-trained and authorised for the three designated airports. Maintenance and repair costs are reduced because the systems are bundled at one location. In this way, we can reduce the number of staff and increase the flexibility and efficiency of shift scheduling.

For the controllers, the job will become more attractive, digital and modern. And it offers greater variety than is the case today at similar medium-sized single-runway locations. Of course, there are challenges. One was to find a system for the out-of-the-window view that met our requirements in terms of performance, flexibility, quality and safety.

The main challenge, however, was a new working environment. Even though the feasibility of the RTC project had already been demonstrated in 2012, we still had to deal with the change process.

Remote technology is a paradigm shift in ATC. It is the first step into the digital future. ➔

Tower services from afar

Does every airport still need a control tower? What was once taken as a given will be different in the future. Air navigation service providers around the world are increasingly backing the remote tower control (RTC) concept. With RTC, air traffic controllers handle traffic at the airport not from a tower on site but from a distant control centre. DFS and the Austrian high-tech company Frequentis have together developed a particularly advanced solution. The view from the tower cab is replaced by one delivered from a camera tower equipped with both static and pan-tilt-zoom video and infrared cameras. The system supports air traffic controllers in doing their work by automatically detecting and tracking aircraft and other targets. The system has already been put through numerous live operations tests at Saarbrücken Airport over a four-month period in 2018.

The Remote Tower Centre

The air traffic controllers who will handle traffic at Saarbrücken Airport will sit in the Remote Tower Centre in Leipzig, more than 400 kilometres away to the east.

Cleared for take-off



Transmission of images

Control of cameras

Camera tower



The future with Remote Tower Control

Remote tower control for Saarbrücken Airport is just the start. Step by step the airports of Erfurt and Dresden will be equipped with camera systems and will be integrated into the Remote Tower Centre in Leipzig. DFS will then control three airports in Germany from one location.



SAARBRÜCKEN

Cleared for take-off

