MUCH MORE THAN A REMOTE POSSIBILITY…

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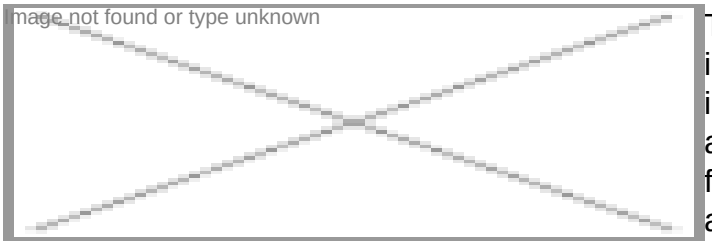
Remote towers are now operating elsewhere in the world, so how could the concept be applied to the Middle East? Alan Corner, who heads up the Dubai office for aviation consultancy Helios, gives his views.



The Middle East is not generally afraid of innovation. We are no longer surprised at the incredible growth and achievements of the aviation sector – the record orders for the world's fastest growing airlines, building 'super-sized' airports and developing new concepts to further increase air traffic management efficiency and capacity.

Given the challenges and a natural tendency to innovate, it is, therefore, surprising that we have only recently seen an interest in remote towers and their technology in this region.

Of course, the introduction of remote towers is not straightforward but, with the recent transition into operation of Örnsköldsvik airport in Sweden, air navigation services provider LFV has proved that it is possible to meet all the operational, safety and regulatory challenges, albeit for a specific fairly low-intensity operation.

Other air navigation service providers (ANSPs) are not far behind. Avinor is procuring technology for use at 15 airports; HungaroControl is well down the road to system definition for Budapest Airport; and, in the Asia Pacific region, Air Services Australia and Airways New Zealand are completing or planning trials.

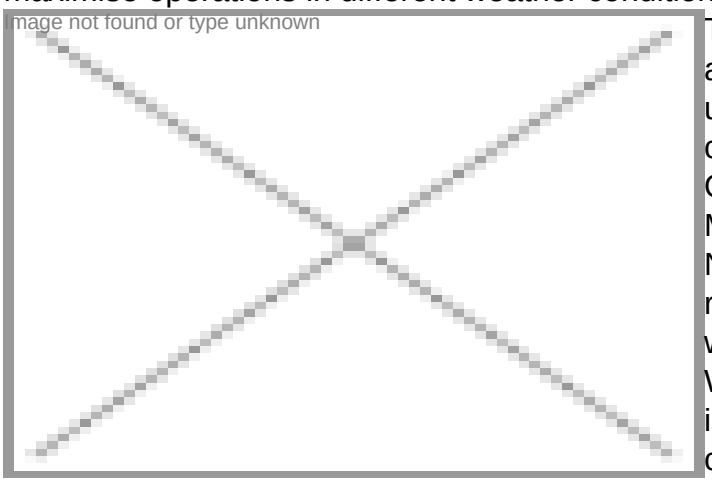
Back in Europe, the Irish Aviation Authority (IAA) and DFS recently announced contracts to procure remote tower technology.

DFS is planning to use remote technology for medium-sized Saarbrücken Airport, which will be controlled from a facility some 350 miles away in Leipzig beginning in 2017, with Erfurt and Dresden airports to follow.

The IAA is implementing a remote tower centre at Dublin Airport, plus remote tower installations at Cork and Shannon, as part of a high-level demonstration under the single European sky ATM research (SESAR) programme in 2015-16.

Also in cooperation with SESAR, ENAV is participating in the remote airport concept of operation

(RACOON) project to demonstrate the viability of providing remote air traffic control tower services to multiple airports from Milan Malpensa Airport.
Until recently, the case for remote towers has generally been driven by cost and based on providing services to one or more low-intensity airports from a single location. There are, of course, scenarios where this would potentially apply in the Middle East, including at some of the smaller domestic airports in the Kingdom of Saudi Arabia, or even to support aviation operations in the oil and gas industry.
However, the use of remote technology has an even greater potential in the region.
The Middle East is home to some of the world's largest and fastest growing airports. This provides significant challenges for ANSPs to maintain or even improve safety and efficiency in an increasingly busy and complex environment, including apron operations. The digitisation of data developed for remote towers can provide controllers with additional 'tools', such as target tracking, laser range finders and surveillance label overlays, to name but a few. It can also provide greater levels of resilience, for example, using infra-red (IR) vision in low visibility and through improved foreign object detection, and airport security, all of which help both the ANS provider and airport to maximise operations in different weather conditions.



This would have a significant impact on airports across the region that routinely suffer from unexpected and extended periods of fog at certain times of the year.
One of the largest planned facilities is Dubai's Al Maktoum International Airport. Here, Dubai Air Navigation Services (DANS) is studying how remote technology could be employed in what will be a particularly complex operation.
While the initial aim is to provide contingency, it is easy to see how a single remote control centre, staffed by several controllers using an integrated picture comprising video, IR and other surveillance sources, could provide a safer and more efficient operation than a traditional tower (or towers). Indeed, when the airport reaches full capacity, it might be the only way of safely providing air traffic services.
The same concepts could also be used to enhance more routine operations at other fast-growing airports. A remote centre can be located away from the operation, avoiding the need for new towers as new runways are built or terminals expanded.
If we think further out of the box, there is also the potential to provide cross-border services to airports in countries that are recovering from conflict.
So, if there is so much potential, why hasn't the region embraced remote towers already?
There is no single answer. There is no end of potential suppliers and the technology, in the main, is already proven. Clearly, the focus, until recently, has been on providing services to multiple smaller airports, such as those in remoter areas of Norway, Sweden or Australia.
The geography in the Middle East is very different. The service providers, predominately state-owned, also have other priorities and, until recently, there has been less pressure on cost, particularly in the Gulf Cooperation Council states. The reluctance might also reflect the different social context, as governments seek to create new high-value employment opportunities for the younger generation.
The regulatory environment is also different. Regulators tend to be more cautious and, arguably, less well resourced.
The Swedish regulator has been heavily involved in the development of SAAB's remote tower in Sweden. This proved essential but was a significant commitment over many years. While it is easier not being the first, the General Civil Aviation Authority (GCAA) will undoubtedly have to commit a similar amount of effort to DANS' proposals for Al Maktoum. In Europe, it took 10 or so

years to develop, mostly for the design phase, with the last two to three years being used for verification, testing and regulatory approval. The key is getting the implementation concept and design right from the outset. Once all the different options have been explored, an implementation plan can then be prepared and the detailed task of assessing issues and risks (safety, cyber security, human factors etc) can begin.
As the focus for remote towers shifts, we are already starting to see more interest from the Middle East and, given the ability of the region to innovate quickly when required, we shouldn't be surprised if a major airport in the region is the first in the world to provide routine high intensity operations from a remote centre… The operational rationale already exists.

• Alan Corner is director Middle East for aviation consultancy Helios, with offices in UK, Dubai and Slovakia. He has extensive experience living and working in the Middle East, where he oversees a wide range of projects for airports and ANSPs throughout the region. Helios has been providing independent advice to airports and ANSPs on remote towers since 2008. Its work includes the development of feasibility studies and business cases, and supporting the procurement of remote tower solutions, including operational concepts, business cases, technical requirements and safety assessments. Helios is part of Egis, a $1 billion global infrastructure engineering group with an extensive aviation offering.

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